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WOOD

Combined With

WOOD PRODUCTS

October, 1951

Dimension's Dosker

See page 25 — WOOD SALUTES

Housing in a Hurry

Assembling roof trusses at the P&H houses division plant in Wisconsin. Page 28

Log Costs

How much equipment is needed per thousand board feet of lumber is calculated on page 27

Tool Maintenance

Proper care of saws and knives pays real dividends. How to set up the department is shown on page 32

See these Features

- Fire at Randle Valley
- Hardwood in Furniture
- Infra-Red Drying
- Trends
- Patent Digest
- Foreign Woods
- New Products

A Vance Publication

The National Management and News Magazine of the Forest Products Industry.

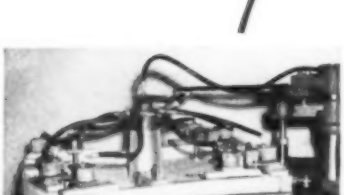
A Solution to Rising Production Costs

WHITNEY
Automatic
POWER FEED
SHAPERS

- ★ Increase production up to 1000%
- ★ Assure smooth, uniform work
- ★ Reduce sanding operations
- ★ Single and Double Spindle Models
- ★ Two types of motor drive to fit your particular needs

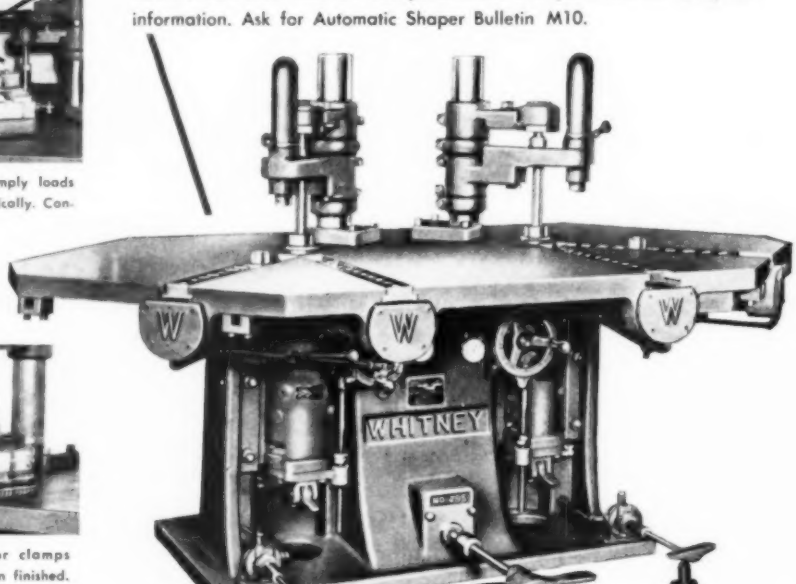
Whitney Automatic Power Feed Shapers can be the solution to your rising production costs resulting from slow, out-moded, time-wasting hand shaping. They produce superior work at high production rates and reduce labor costs. Work from these shapers is always uniform and requires a minimum of sanding. Output can be increased as much as 1000%.

Whitney Automatic Power Feed Shapers reduce costs on both short and long runs. Forms are changed as quickly and easily as in hand shaping — can be furnished with air clamps or hand clamps. Write for complete information. Ask for Automatic Shaper Bulletin M10.



AIR CLAMP FORMS — Operator simply loads and unloads. Clamps work automatically. Continuous power feed.

HAND CLAMP FORMS — Operator clamps blanks in form. Removes pieces when finished. Power feed feeds work past spindles.



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WINCHENDON, MASSACHUSETTS, U. S. A.

OCT 15 B 331503

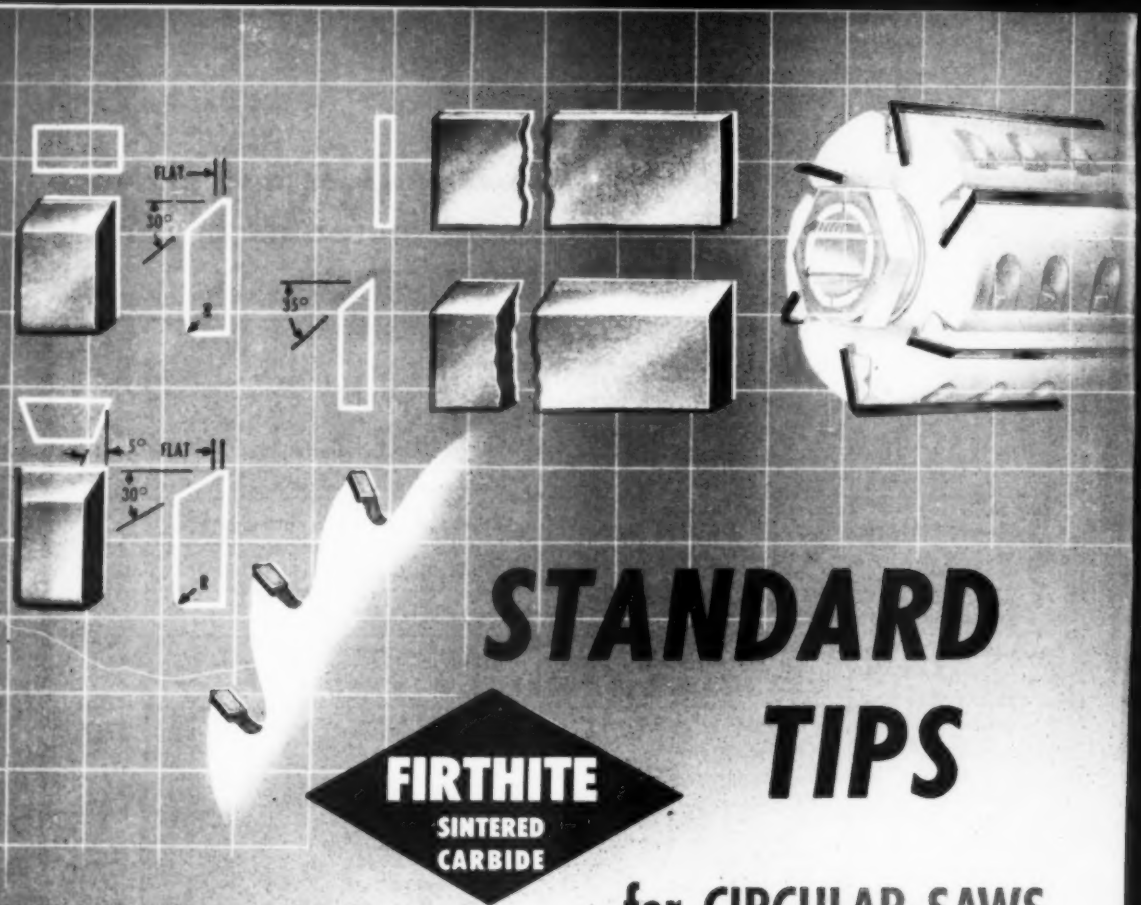
Military Specifications for glues and plywood

☆☆☆☆ recommended materials to comply

No. of Specification Date of Latest Issue	TITLE	MATERIALS TO COMPLY		
AN-G-8 25 April 1942	Glues, cold-setting resin	Type I	Cascamite 66M with M-42 (3.5 parts)	No extension
			Cascamite 151 with FM-50 (20 parts)	No extension
			Cascamite RF-88 with FM-120 (15 parts)	No extension
		Type II	Cascamite 12	No extension
			Cascamite 14	No extension
		Type III	Casco-Resin 5 with FM-62 (15 parts)	No extension
			Casco-Resin 150 with FM-142F (12-15 parts)	No extension
			Casco-Resin 150 with FM-108 (25 parts)	No extension
AN-P-43 31 March 1943	Plywood, aircraft, molded (fluid pressure)	Glues to meet JAN-A-397 or MIL-A-5534		
CG-456 8 July 1941	Glue, casein type, water resistant	Casco Grade A, Aircraft Joint P, 350, 231-P		
CG-496 17 June 1946	Glue, resin type (liquid and powder)	Same as AN-G-8		
MIL-A-397A 6 April 1951	Adhesive, room-temp. and intermediate-temp.-setting resin (phenol, resorcinol and melamine base)	Type I	Class I — Cascophen RS-240M	
			Class I or II—Cascophen RS-216, RS-224	
		Type II	Class I or II—same as Type I, also Cascophen LT-67, LT-68	
JAN-P-139 22 August 1946	Packaging and packing for overseas shipment. Plywood, container grade	Type A	Cascophen HP-402	No extension
			Cascophen HP-403	No extension
		Type B	Cascamite 66M (cold)	60 parts flour
			Cascamite 66M (hot)	115 parts flour, 5.8 penta.*
			Cascamite 151 (cold)	60 parts flour
			Cascamite 151 (hot)	135 parts flour, 6.75 penta.*
			Casco-Resin 5 (cold)	50 parts flour, 2.5 penta.*
			Casco-Resin 5 (hot)	100 parts flour, 5 penta.*
			Casco-Resin 30 (cold)	30 parts flour
			Casco-Resin 30 (hot)	68 parts flour, 5 penta.*
			Cascophen HP-402, 403	100 parts flour, 5 penta.*
			For veneers over 1/8" thick, reduce extender 33%	*pentachlorophenol
MIL-A-3534 9 January 1950 *Supersedes:* AN-A-45 USAF-14139	Adhesive, high temperature-setting resin (phenol, resorcinol and melamine base)	Cond. A.	Cascophen RS-216 with FM-60M (20 parts)	11.5 pts. Glufil
			Cascophen RS-240M with FM-124 (20 parts)	15 pts. Glufil
			Cascophen RS-224 with FM-128 (25 parts)	15 pts. Glufil
			Cascophen LT-67 with H-23 (6 parts)	20 pts. Glufil
		Cond. B.	Cascophen HP-403 hot press	30 pts. Glufil
			Cascophen HP-402 with H-21 (4 parts)	No extension
MIL-P-6070 29 March 1950 *Supersedes:* AN-P-69a	Plywood and veneer Aircraft flat panel	Glues to meet AN-A-45 (MIL-A-5534)		
CS35-49 1 December 1949 *Supersedes:* CS35-47	Hardwood plywood	Tech. or Type I	Any Cascophen	No extension
		Type II	Casco-Resin 5 cold press	100 parts flour
			Casco-Resin 5 hot press	125 parts flour
			Cascamite 66M cold press	115 parts flour
			Cascamite 66M hot press	150 parts flour
			Cascamite 151 cold press	150 parts flour
			Cascamite 151 hot press	185 parts flour
			Casco-Resin 30 cold press	83 parts flour
			Casco-Resin 30 hot press	105 parts flour
			Casco Grade A, 350, 231-P, Air Joint P, 375, S-2195	
MIL-P-66A 27 December 1949 *Supersedes:* JAN-P-66	Plywood, flat-panel	Hardwood plywood to meet CS35-49		

● Send for your free copy of Casco Service Bulletin 82, "Government Procurement of Wood, Plastics and Paper Products." Lists Purchasing Offices, includes complete Specification Chart, tells how to estimate glue costs. It's part of Borden's Glue Service. Address: Dept. W-101, The Borden Company, Chemical Division, 350 Madison Avenue, New York 17, N. Y.

Borden's
CHEMICAL DIVISION



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FIRTHITE
SINTERED CARBIDE

for CIRCULAR SAWS and PLANER KNIVES

88 Standard Sizes of Saw Tips, in 2 Styles

Available in 3 Firthite grades for: heavy duty ripping or cut-off work in the rough mill; finish cross-cutting, ripping and panel sizing; cutting insulation board, hard board, fibres, plastics and impregnated laminated plywood.

20 Standard Sizes for Straight Knives and Knife Tips

Available in 3 Firthite grades. All solid knives and blanks for brazing are supplied unground to tool manufacturers.

Firthite Tips in "industry-standard" sizes for circular saws and planer knives were established through close cooperation of the Wood Industry tool and machinery manufacturers and Firth Sterling.

Standard Firthite tips meets the demands of the woodworking industry for more efficient and economical tooling —to produce *better* products *faster* and *cheaper!*

For information about the engineering and other services available to the wood fabricators and tool manufacturers, contact your nearest Firth Sterling Branch Office.

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WOOD

COMBINED WITH

WOOD PRODUCTS

ABC ABP

Volume 56 No. 10

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A fool and his money have a lot of girl friends.

• • •

The honeymoon is really over when she misquotes to the tune, "Two beds are better than one."

• • •

Let's misquote some more. Two 'knows' are better than a 'dunno' everytime.

You know what you want, the complete specifications, end uses and conditions under which your lumber items will be used.

We, as wholesalers, know our sawmills, their machinery, the skills and logs best suited to turn out exactly your order.

Let's put those two 'knows' together and get one terrific 'yes', for you and for MAUK lumber products.

• • •

I asked her if she was doing anything that night and she said she wasn't and I took her out and sure enough, she wasn't.

• • •

Simple Celia thinks a V neck does a lot for any gal's hope chest, and a W neck is even better.

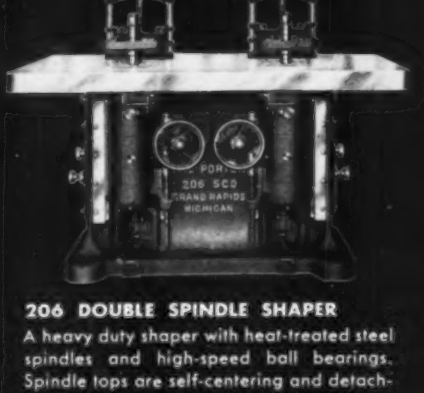
• • •

So this is a free country and the government won't even let me buy more than I can afford anymore.

• • •

Mauk Seattle Lumber Co.
Seattle 1, Washington

The C. A. Mauk Lumber Co.
Toledo, Ohio



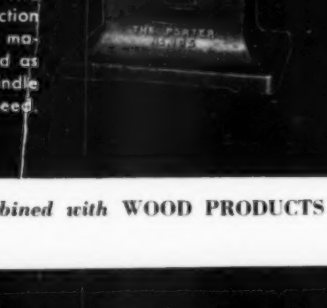
206 DOUBLE SPINDLE SHAPER
A heavy duty shaper with heat-treated steel spindles and high-speed ball bearings. Spindle tops are self-centering and detachable. Mirror-smooth table. 8500 RPM's

405 SURFACER
Handles 11⅛" lengths without butting end to end. Has a matched V-belt drive for rotating the cutterhead at 6,000 RPM to assure clean, smooth, perfect work.

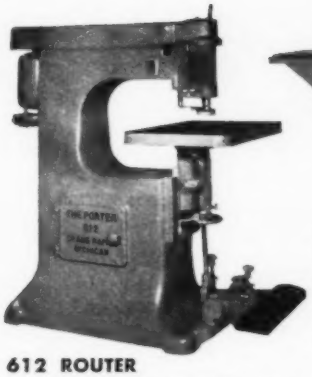
PORTER machinery is DIVIDEND DESIGNED

155 SERPENTINE SHAPER
Performs all types of curved or serpentine shaping. Tables run on ground and shaped dovetails. Two spindles with 12,000 — 18,000 RPM.

700 SURFACEMASTER FACING PLANER
All-steel construction, rugged as a battleship. Designed to accommodate conveyors. Infeed table and conveyor raise and lower together. Variable speed, 40 to 100 feet per minute. 24" and 36" widths. 3600 RPM with motor on arbor, 4800 RPM with belted motor drive.



105 SINGLE SPINDLE SHAPER
A high-speed, medium-sized shaper operating at 12,000 RPM/s. Has the same rugged construction as the larger Porter machines. Also furnished as No. 112 double spindle shaper with same speed.



612 ROUTER
A heavy duty single spindle router. 2 speeds — 20,000 RPM and 12,000 RPM. Vertical table travel by foot pedal. Furnished also with sliding head. Other sizes also available.

300 JOINTER
Rigidly ribbed tables with aggregate length of 8'. Dovetailed steel lips, intermediate sliding table. 12", 16", 24", 30", 36" widths.

STRAIGHT LINE AND COMPOUND ANGULAR CUT-OFF SAWS
Keep perfect alignment, require less maintenance. Operate on hardened steel balls running in hardened and ground alloy steel raceways.

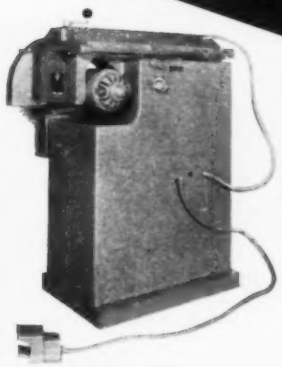
... to give you more production for every dollar you spend

Buying Porter **DIVIDEND DESIGNED** Machinery is like buying custom-built furniture at a popular price. You get so much more for your money. Your cost per job is less because Porter Machines are faster, take heavier cuts and require less adjusting. They have an extra margin of speed, capacity and strength not found in ordinary machines.

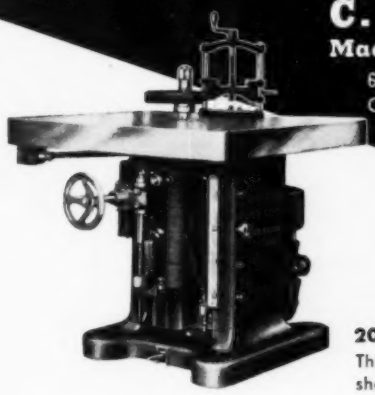
Porter's Master Mechanics have concentrated on building fewer machines better. Each machine is built by specialists with years of experience in building one particular type of equipment. They take pride in their work and produce masterpieces of mechanical skill, designed to give you a profit dividend.

DIVIDEND DESIGN means all this and more, too. It typifies the engineering skill for which Porter has become famous. It describes the Porter "FEEL" for planning that enables 3 men to do the work of 8, or 5 men to do the work of 15.

If you need a Router, Saw, Shaper, Planer, Carver, Jointer, Surfacer or Serpentine Shaper it will pay you to investigate Porter, the machinery designed to give you greater dividends.



HYDRACUT SAW
(Hydraulic or Air operated)
Automatically operated straight line cut-off saw saves manhours. Cuts from 0 to 45 strokes a minute.



203 SINGLE SPINDLE SHAPER
This heavy duty single spindle shaper handles a full range of work from light to heavy at 8500 RPM's.

C. O. Porter
Machinery Company
667 Front St., N. W.
Grand Rapids, Mich.

Yates-American THIN KNIVES Unexcelled!

When you want the finest . . . **quality unexcelled** . . . look to Yates-American Thin Knives! These new and improved High Speed Steel Knives have extra quality built into them all the way . . . selected cutting of steel; controlled heat treating; special surface grinding; accurate edge grinding and beveling; individual inspection and testing; precise cut-off and balance; electrically etched marking. You can be sure when you specify YA Thin Knives!

PRE-PROCESSING — new, exclusive!

. . . this is a step in manufacturing that gives special strength to YA Thin Knives . . . an exclusive YA process that is basic in assuring the extremely high quality of the finished product.

IMMEDIATE DELIVERY

Insist on using the finest Thin Knives . . . the ones that bear the quality YA trade-mark . . . they are now available for immediate delivery. Standard sizes in stock at High Point, North Carolina; Memphis, Tennessee; and Portland, Oregon.

PLASTIC PACKAGED

YA Thin Knives are plastic packaged with an air-tight waterproof coating to protect them against rust, corrosion or damage to cutting edge. This feature assures delivery to you in the correct condition. Quality all the way!

YA Yates-American

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MATCHERS • BAND RESAWS
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CIRCULAR RIPSAWS

Industry Trends

This Month's Challenge

During the past decade the demand for wood products of every description has been so great that quality of manufacture in the placement of orders became a minor consideration. Quantity and delivery were the prime considerations, and the industry has enlarged many fold. Today the industry is going through a period of economic normalcy and could well be the start of a highly competitive lumber market. Such a market demands high standards of quality, conscientious price structures and top customer service for those who expect to survive. With inflated costs such as labor, materials and taxes, manufacturers must constantly be on the lookout for better tools, machinery and equipment. They must create better working procedures. They must know their costs. They must strive for greater utilization of the raw products. They must eliminate waste in every form and develop new products from and markets for this waste. The days of bull strength and brawn and the methods of manufacturing and marketing appear to be a thing of the past.

PRODUCTION

Foresters

Forestry is the business of managing woodlands for the continuous production of forest goods and services. The justification of forestry is the dollar and cents value of good forestry management. As our plentiful stands of virgin timber decreased the need for sound forestry methods increased. In 1930 there were approximately 600 trained foresters employed on private timberlands. In 1950 there were 3100 employed or one man for each 68,000 acres. This is in addition to those employed by the government both federal and state. Today, America has 22 high ranking schools of forestry and at least that many lesser ones. The Society of American Foresters estimates these schools have trained about 17,500 technically qualified people whose progressive influence in the field of forestry management becomes more potent each year. As the number of foresters continue to rise in the United States, so will the quality of management on the country's forest lands. This trend is one of the most significant ones in our industry as it means: 1. More effective protection each year against fire, insects and disease; 2. Assure increasing wood supplies in the future; 3. Constantly renewing crops of trees; 4. Closing of the gap between wood removal and wood growth.

Closing the Gap

Official figures show forest growth is increasing. The ratios between growth and removal of the nation's wood supply as officially reported for all timber are:

In 1918	removal	was	4.34	times	new	growth
In 1929	"	"	1.83	"	"	"
In 1936	"	"	1.19	"	"	"
In 1944	"	"	1.02	"	"	"

In sawtimber the ratios between growth and removal are:

In 1918	removal	was	5.8	times	new	growth
In 1929	"	"	5.1	"	"	"
In 1936	"	"	1.49	"	"	"
In 1944	"	"	1.31	"	"	"

The gap is narrowing. Timber growth and consumption are moving into balance.

Bamboo Plywood

An initial shipment of bamboo plywood has reached this country from Japan. Made in a plant near Nagasaki the sheets are 4' x 8' in ¾" and ¼" finished on both sides. Hand sanding and rubbing is necessary to permit the bamboo joints to stand out and enhance the beauty and distinctiveness of the face.

Increase California Production

A plan to increase California lumber production by 500 million feet a year by increased cutting in national forests was revealed at a meeting of lumber operators with the State Forestry Board.

W. E. Rosecrans, the Board Chairman and creator of the plan, said that while four billion feet of lumber is cut each year in the State, only about one and one-half billion feet is being replaced. He estimated that under his plan, with the additional cutting in the National Forests, California will be able to grow three and one-half billion feet yearly.

Material Priorities

Today the priority system is set up to get the necessary materials needed to defense agencies as quickly as possible. This necessity is dependent upon what the manufacturer is doing in defense work. According to responsible government officials, this does not mean that you must have the defense contracts in hand. Anyone who is regularly placing bids for defense work on lumber and other wood products will stand a very good chance of having his requests granted.

OPS Developments

Many WOOD & WOOD PRODUCTS readers have received requests for prices from OPS. Those in close touch with the situation advise prompt return of the request completely filled out. The reason . . . with a more complete sample of prices each sector of the industry will receive a much better break when the prices are set up based on facts rather than otherwise. If you have such a request on your desk, fill it out and return it to OPS today.

Alaska Sawmill Logs

Saw logs produced in Alaska and consumed by Alaskan sawmills are exempt from price control until December 31, 1951, by an order of OPS in Supplementary Regulation 55 to the General Ceiling Price Regulation. GCPR, effective August 30, 1951.

Alaskan logs have been subject to control which froze prices at the highest level existing between December 19, 1950, and January 25, 1951. Since the logging industry in Alaska was

(Continued on page 10)

IT'S NEW!

IT'S DISSTON!

IT'S THE BEST IN LIGHT-WEIGHT SAWS!

Here is a new model of an old woods favorite—the tough, light-weight DO-101 Disston One-Man Chain Saw. It has a sturdier crankshaft, a reinforced rear handle, new rapid-action toggle stop-switch and many other advanced features for harder use and longer life. And, for smoother, faster cutting, the DO-101 is equipped with Disston's new fast-cutting "DF" chain. Running on a narrow profile slotted guide rail, this chain cuts a kerf that minimizes binding. Can be sharpened by hand on the rail in a matter of minutes.

Don't take our word that a Disston is just about the finest cutting tool that's ever come your way. Ask anyone who has ever handled a Disston. Then see your Disston Dealer. He'll let you try out one of these beauties for yourself. Once you feel that steady power safely under your command and effortlessly guide the chain through a cut, you won't rest until you own one of these time-saving money-makers yourself.

Don't forget, Disston also makes the powerful DH-120 12-hp Two-Man Extra Duty Chain Saw . . . a favorite the world over.

Featuring—

New, Fast-Cutting Chain

Narrow Slotted Guide Rail

FIGHT WASTE

A tip for present Disston Saw Owners . . .

Follow the simple FIGHT WASTE preventive maintenance instructions which are available to you free of charge. Send for the valuable check-up charts, the illustrated maintenance folder, the detailed handbooks. Above all, rely on the services of your Disston Dealer.

HENRY DISSTON & SONS, INC.

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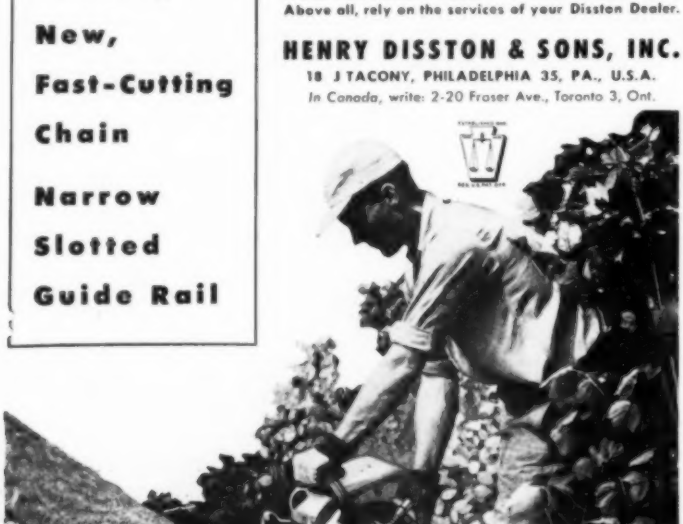


THE DO-101 ONE-MAN SAW. 2-cycle, single-cylinder engine. Positive action clutch. Instant-starting, self-rewinding Magnapull Starter. Automatic chain lubricator. Fast-cutting "DF" chain and slotted profile guide rail in 20", 26", 32", 36", 40" lengths. Also available are 18" and 24" rails with straddle type chain and 15" bow saw for speedy bucking and limbing. Helper handle available for two-man operation.

TRENDS

(Continued from page 9)

virtually inoperative at that time—the normal season runs from May until November—many operators found it difficult or impossible to determine ceiling prices for the current season. Thus, curtailment of production followed. It is expected that a tailored regulation will be issued covering Alaskan saw logs before commencement of the 1952 season.

HOUSING

Relaxed Credit on Home Building

The Emergency Subcommittee of the National Association of Home Builders of the United States believes that the relaxed credit curbs should now make it possible for the home building industry to reach the 850,000 unit target established by the government for 1952, providing the consumption of critical materials by the defense effort proceeds at approximately its present rate.

It is the Committee's opinion that builders, in planning their programs for 1952, should take into account not only the market in the light of the new credit regulations, but should seriously consider the danger of becoming involved in a substantial program which they may have difficulty in completing because of material and labor shortages which may well occur in 1952. An executive of the Association expects that home building costs will rise at least five percent next year.

LUMBER

Production, Markets

The slight rise in the softwood lumber market is traceable to several contributing factors. Usually heavy replacement requirements have come from the Oklahoma, Kansas and Missouri flood areas. Forest fires in some of the timber areas of the western states and the extremely dry conditions in the forests have caused shutdowns of some of the logging operations. All this, together with an expected shortage of freight cars, is causing a rise in some of the prices of the better grades.

(Continued on page 12)

You can reduce wet sanding time...

NEW "Red-I-Cut" Waterproof Paper by CARBORUNDUM cuts faster—produces a better finish—lasts as much as *50% longer* on production runs. It's flexible, yet sturdy, with an extra-tough backing.

Since it lasts longer, down-time is reduced. Thus, substantial time savings are effected in the over-all finishing operation. See your CARBORUNDUM representative, or write Dept. W 82-128 for full details.

Ask for the RED-BACK paper by

CARBORUNDUM
TRADE MARK

"Carborundum" and "Red-I-Cut" are trademarks of The Carborundum Company, Niagara Falls, New York

introducing

the Coffing
COIL CHAIN
SAFETY-PULL
RATCHET LEVER HOIST

The Model R is now available in 1,500- and 3,000-lb. capacities — other sizes will follow.

Advanced Guard for a New, Advanced Line

Here is a completely new ratchet lever hoist designed to bring you added safety and convenience. The Model R incorporates the time-proved ratchet and pawl principle originated by Coffing — makes it hold positively at all times — no friction-type brake to slip or freeze — chain is free wheeling when not under load.

Many New Advantages

COIL CHAIN Swings or wraps in any direction for greater flexibility in use.

SIX OPERATING POSITIONS Handle operates in any position, works on full or partial strokes — for ease of handling in close quarters. Safety stops prevent spinning of handle.

SAFETY FACTOR OF FIVE All hoist load-holding parts designed to withstand pull equal to five times rated capacity. Each hoist also factory tested at 100 percent overload. "Safety-valve" handle bends at point of maximum safe overload.

SIMPLE TO SERVICE The Model R may be completely disassembled with only a screwdriver for easy servicing. Not necessary to return it to the factory for repairs.

Find out more about the hoist that gives you greater convenience and safety in all lifting, pulling, stretching. Write for Bull tin WD10R.

COFFING HOIST COMPANY
Danville, Illinois

Quik-Lift Electric Hoists • Hoist-Alls • Load Binders
Mighty-Midget Pullers • Spur-Geared Hoists
Differential Chain Hoists • I-Beam Trolleys

Sold by Industrial Distributors everywhere

TRENDS

(Continued from page 10)

While the condition of the hardwood lumber market is still somewhat below what would be considered normal for this season of the year, it is notable that the figures are still ahead of the those in the same period of 1950. It is believed that with the general rise that is expected during the last quarter, the total for the year will be ahead of the 1950 volume.

VENEERS

Production, Shipments

The slightly downward trend of veneer production and shipments still obtains, although slight gains are expected to materialize during the first part of October. Face veneers are available in fair quantity, and demand is expected to take an upward turn the last quarter of 1951. The supply of veneer logs is better than it has been for some time, and is expected to continue adequate for any contemplated increase in demand within the near future.

CONTAINERS

Frozen Juices

The advent and increased use of frozen citrus juices each year, especially orange juice, cannot help but effect the use of wood in citrus fruit crates. The sawmills and veneer plants, many of whom manufacture the materials only and others the

(Continued on page 16)

WOODICTIONARY

BULL COOK

One who cleans the sleeping quarters, cuts firewood, builds fires, and carries wood, etc.

KILN DRIED LUMBER

FOR

immediate shipment

EITHER TRUCKLOAD OR CARLOAD LOTS

Northern Hardwoods

Basswood	4/4 to 6/4
Birch	4/4 to 8/4
Hard Maple	4/4 to 8/4
Soft Elm	4/4 to 12/4

Appalachian Hardwoods

Beech	5/8 to 10/1
Red Oak	5/8 to 8/4
White Oak	5/8 to 8/4

Southern Hardwoods

Ash	4/4 to 8/4
Basswood	4/4 to 6/4
Hackberry	4/4,to 5/4
Sap Gum	5/8 to 8/4
Tupelo Gum	4/4 to 8/4
Red Gum	4/4
Soft Maple	4/4 to 12/4
Sycamore	5/8, to 8/4
Poplar	3/4 to 12/4
Hickory (AD)	8/4
Cypress (AD)	4/4

Mahogany

Honduras	3/4 to 12/4

Walnut

Steamed	5/8 to 8/4

Pine

Parana (Brazilian)	4/4, 5/4

The above hardwoods are in No. 1 Com. & Better Grades

and generally are available in higher grades.

Your inquiry will receive prompt and courteous attention

MONARCH HARDWOOD LUMBER CO.
3304 W. Belmont Ave.
Chicago, Ill. Tel. JUniper 8-1234

You get more . . . you save more with

CHEVROLET

ADVANCE-DESIGN

TRUCKS

Whatever the job you have for a truck, Chevrolet has the truck that's *right* for your job! It's a new Chevrolet Advance-Design truck, built to cut your trucking costs down to rock bottom. Saves you money when you buy, because the purchase price is low. Saves money right along, because no other truck in its price class offers the great combination of *ruggedness, durability and economy* you get in Chevrolet. Just look at the extra value features that make Chevrolet trucks *stand up better, handle easier, cost little to run and maintain.* Your best truck deal is the deal you get on a Chevrolet Advance-Design truck at your Chevrolet dealer's.

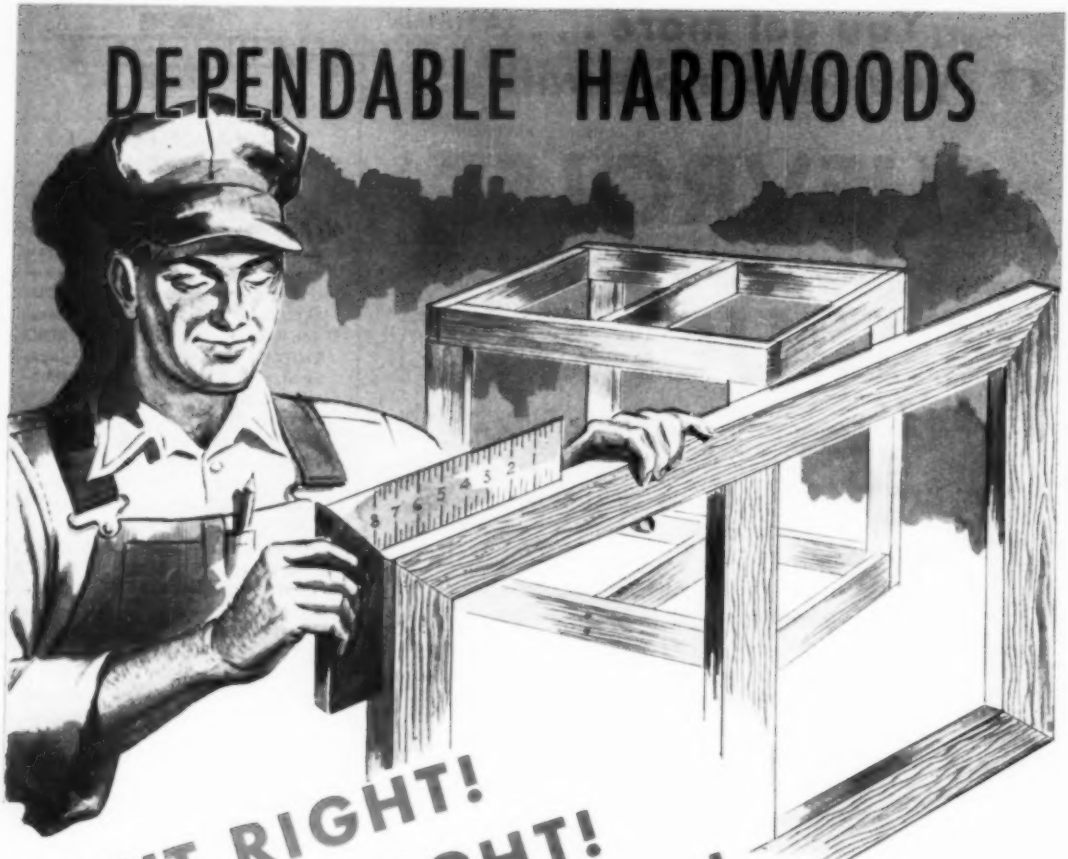
CHEVROLET DIVISION OF GENERAL MOTORS
DETROIT 2, MICHIGAN

CHEVROLET

ADVANCE-DESIGN TRUCK FEATURES

TWO GREAT VALVE-IN-HEAD ENGINES—the 105-h.p. Loadmaster or the 92-h.p. Thriftmaster—to give you greater power per gallon, lower cost per load • POWER-JET CARBURETOR—for smooth, quick acceleration response • DIAPHRAGM SPRING CLUTCH—for easy-action engagement • SYNCHRO-MESH TRANSMISSIONS—for fast, smooth shifting • HYPOID REAR AXLES—for dependability and long life • NEW TORQUE-ACTION BRAKES—for light-duty models • PROVED DEPENDABLE DOUBLE-ARTICULATED BRAKES—for medium-duty models • NEW TWIN-ACTION REAR BRAKES—for heavy-duty models • NEW DUAL-SHOE PARKING BRAKE—for greater holding ability on heavy-duty models • NEW CAB SEATS—for complete riding comfort • NEW VENTIPANES—for improved cab ventilation • WIDE-BASE WHEELS—for increased tire mileage • BALL-TYPE STEERING—for easier handling • UNIT-DESIGNED BODIES—for greater load protection • ADVANCE-DESIGN STYLING—for increased comfort and modern appearance.

DEPENDABLE HARDWOODS



CUT RIGHT!
SAWN RIGHT!
DRIED RIGHT and
SHIPPED RIGHT!

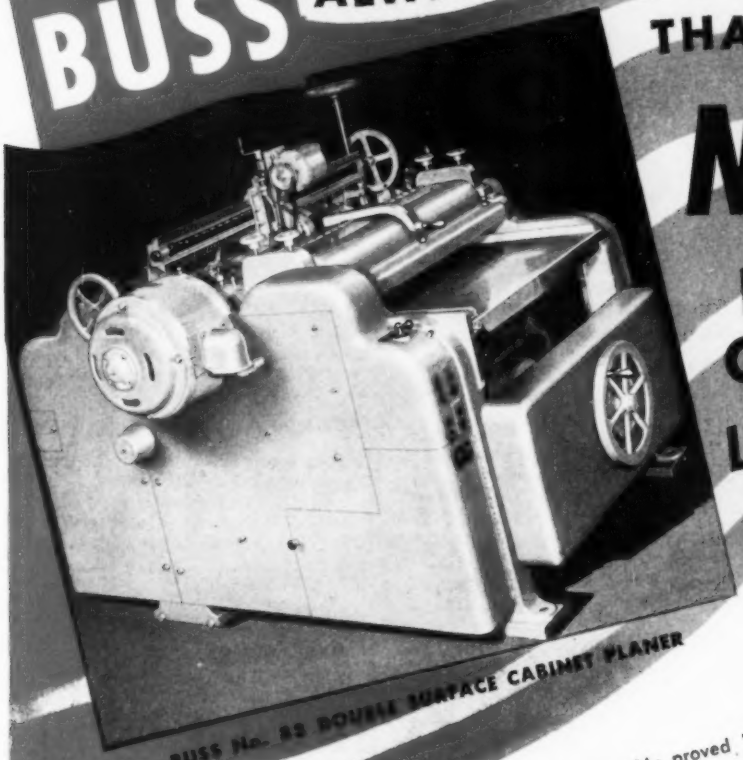
- Furniture Semi-Dimension
- Industrial Oak
- Specialty Cutting
- Millwork Cut Stock

- Yard, Factory and Industrial Lumber
- Red and White Oak
- Red, Black and Sap Gum
- Ash — Cypress — Elm
- Royal Oak Flooring

CROSSETT LUMBER COMPANY — CROSSETT, ARKANSAS

BUSS ALWAYS LEADS IN FEATURES THAT COUNT!

NOW IT'S ONE-SHOT LUBRICATION



BUSS No. 88 DOUBLE SURFACE CABINET PLANER

The time-tested, thoroughly proved "BIJUR" lubrication system is now available on all BUSS planers. Thus by simply activating one little lever, thorough lubrication of all gears, feed rolls and other moving parts requiring frequent lubrication is positively assured. It saves time. It avoids damage that might arise from missed lubrication at vital points. It assures smoother performance and longer machine life. This is just one of many highly desirable features found only in BUSS planers — the product of planing specialists, exclusively. Write for the complete facts and we believe you will agree that BUSS planers offer you the most your money will buy in productivity, quality of finished planing and years of trouble-free service.

PLANER HINTS:

STOCK STICKS, OR HESITATES?

Lower rolls may be set too low. BUSS exclusive control makes it easy to achieve perfect adjustments quickly. Write for copy.

There is a BUSS cabinet surfacer to exactly meet your requirements (small, medium or large; single or double surface). Write for bulletins. We will be glad to aid you in your selection.

BUSS
SINCE 1862
MACHINE WORKS

PLANER SPECIALISTS EXCLUSIVELY

244 EIGHTH ST.,
HOLLAND, MICHIGAN

PRECISION BUSS PLANERS

NEW DURO 15" HEAVY DUTY Band-Saw

. . . with a
HOST OF OUTSTANDING COST-CUTTING FEATURES . . .

If your problem is wood-cutting at lowest cost—this completely new 15" Duro production type band saw is the answer! New "advanced design" gives you **extra capacity** for large work, **longer blade life**, increased safety. Check these advantages: **husky cast iron frame** eliminates vibration; **one-piece guard** covers upper and lower wheels, swings aside easily for quick adjustments; **over-sized table**, slotted for mitre gauge, tilts on heavy trunnions to 45°; **dynamically balanced wheels** run on **needle bearings**; **guard** is equipped with Built-in-light; **ball bearing blade** guides reduce blade wear and friction to a minimum . . . plus many more features.

WRITE TODAY for full details and specifications on this new Duro 15" Band Saw as well as the 1951 Duro catalog folder which shows the full line of new, improved Duro Power Tools. It's **FREE** . . . write **today!**

DURO Metal Products Co.
2697 No. Kildare Ave., Chicago 39, Illinois

DURO METAL PRODUCTS CO.
2697 N. Kildare Ave.
Chicago 39, Ill.

Please send me specifications and prices on new DURO 15" Heavy Duty Band-Saw—and full story of the complete 1951 line of DURO Power Tools.

Name .....
Address .....
City ..... Zone..... State.....

TRENDS

(Continued from page 12)

complete crates, should begin now to look for other markets for their products or their lumber and veneer. Perhaps we can save a part of this market for wood through the development of a waterproof, insulated returnable shipping case for transporting frozen food packages.

CONSTRUCTION

Allotments Denied for Non-essential Construction

Non-essential construction which can be postponed will receive no allotments of controlled materials for the fourth quarter, and no commercial construction will get fourth quarter allotments unless the denial will adversely affect public safety or welfare.

In making this announcement, NPA said the controlled materials available for construction are inadequate to meet the demands of all applicants, and that it must evaluate the relative essentiality of the projects and allot materials accordingly.

RESEARCH

Lignin—Problem or Profit?

"Lignin, unwanted by-product of paper manufacture, as yet has no satisfactory uses and is expensive to throw away", says John B. Calkin in The Journal of Commerce.

The problem is a unique one because here is a raw material available in the amount of over two and one-half million tons per year, and is one of the relatively few chemicals that need not be depleted by use. "Undoubtedly, further study will develop new derivatives which in turn will lead to still others", declares Mr. Calkin, "and (as in the case of coal tar) a new family of chemicals will be born."

Help! ! !

Here is a question that in order to answer we need help! How many companies in the Forest Products Industry have been in continuous operation 100 years or over? If your company qualifies or you know of one that does, please send WOOD & WOOD PRODUCTS a letter with the name of the company and the year it was founded. Thanks.

Only the Best that Northern Hardwoods Offer

Rotary, Sliced, & Half-Round

VENEERS

In The Following Species:

Birch – Maple – Bass – Ash
Oak – Elm – White Pine

PENOKEE VENEER COMPANY

TELETYPE, MELLEN, WIS. 29 **TELEPHONES 205-3313**
P. O. BOX 220
MELLEN, WISCONSIN

LOOKING FOR

WAYS TO CUT COSTS—

AND SPEED ASSEMBLIES?

THEN LOOK CAREFULLY AT THE

TWIN-fast WOOD SCREW

REG. U. S. PAT. OFF.

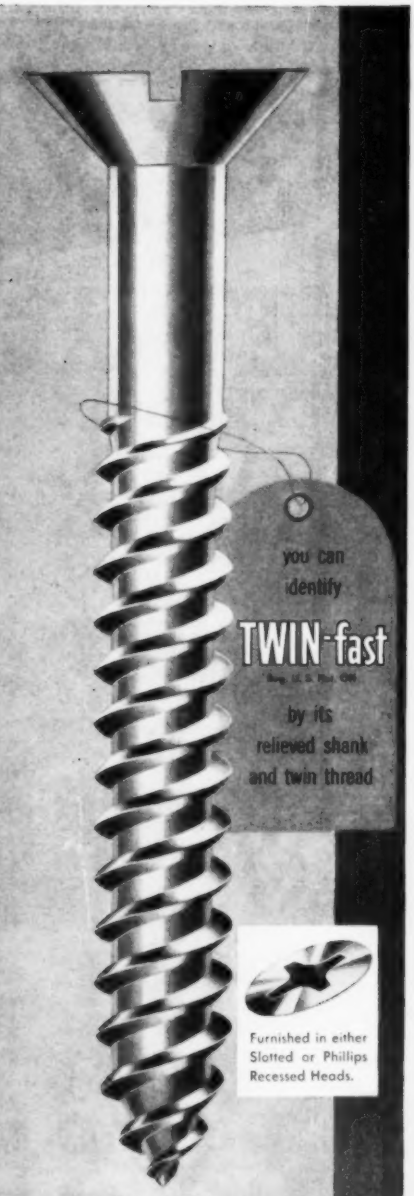
Save assembly time
— twin threads drive twice as fast.

Save on screws
— greater holding power of TWINfast often means fewer or smaller sized screws can be used.

Save operations
— relieved shank diameter often eliminates necessity for drilling shank clearance hole.

Improve product
— tighter assembly and freedom from fractures and ruptures cut down rejects.

For anyone assembling plastic to wood, metal to wood or wood to wood, the TWINfast Screw adds up *fast* to lower production costs.


you can identify
TWIN-fast
by its relieved shank and twin thread
Furnished in either Slotted or Phillips Recessed Heads.

Get the complete story. Write to any of the companies listed below.

Blake & Johnson Company
Waterville 48, Conn.

Continental Screw Company
New Bedford, Mass.

National Screw & Manufacturing Company
Cleveland, Ohio, and Los Angeles, Calif.

Rivco, Inc.
Downey, California

Southington Hardware Manufacturing Company
Southington, Conn.

The Stovell Screw Co., Ltd.
Montreal, Canada

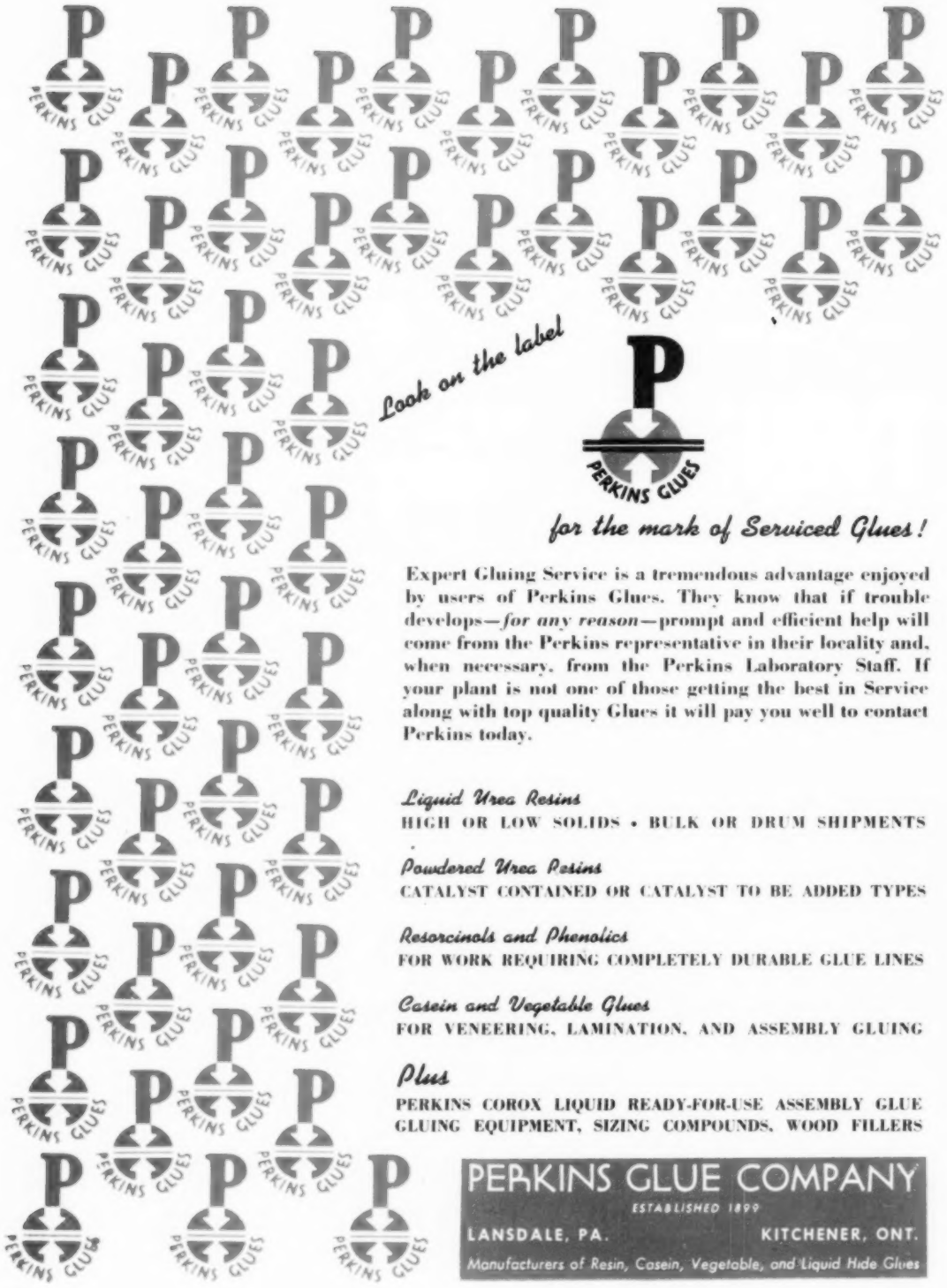
American Screw Company
Willimantic, Conn.

TWIN-fast

Reg. U.S. Pat. Off.

Pat. Nos. 2,314,390 2,314,391 2,373,878 2,373,918 2,492,186

The Faster Driving . . . Cost Cutting Fastener



Look on the label

P
PERKINS GLUES

for the mark of Serviced Glues!

Expert Gluing Service is a tremendous advantage enjoyed by users of Perkins Glues. They know that if trouble develops—*for any reason*—prompt and efficient help will come from the Perkins representative in their locality and, when necessary, from the Perkins Laboratory Staff. If your plant is not one of those getting the best in Service along with top quality Glues it will pay you well to contact Perkins today.

Liquid Urea Resins
HIGH OR LOW SOLIDS • BULK OR DRUM SHIPMENTS

Powdered Urea Resins
CATALYST CONTAINED OR CATALYST TO BE ADDED TYPES

Resorcinols and Phenolics
FOR WORK REQUIRING COMPLETELY DURABLE GLUE LINES

Casein and Vegetable Glues
FOR VENEERING, LAMINATION, AND ASSEMBLY GLUING

Plus
PERKINS COROX LIQUID READY-FOR-USE ASSEMBLY GLUE
GLUING EQUIPMENT, SIZING COMPOUNDS, WOOD FILLERS

PERKINS GLUE COMPANY
ESTABLISHED 1899
LANSDALE, PA. KITCHENER, ONT.
Manufacturers of Resin, Casein, Vegetable, and Liquid Hide Glues

MARKETS

These prices are estimates made available by Mr. George Land, publisher of the *Hardwood Market Report*, and reflect prices as indicated in his copyrighted issue of September 15, 1951. Mr. Land's complete report is available weekly; those who want the entire list should contact him c/o Box 5716, Memphis 4, Tenn.

SOUTHERN HARDWOODS

F.O.B. mills—Texas & Louisiana area—estimate of present FOB Texas & Louisiana mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on hand-sawn Southern Hardwoods in carload quantities, random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'. on straight cars of upper bracket grades premiums are frequently being paid.

ASH—FIRM TEXTURE

	FAS	No. 1C	No. 2C
4/4-in.	155	110	60
6/4-in.	168	120	65
8/4-in.	180	140	70

BASSWOOD

4/4-in.	160	125	80
6/4-in.	170	135	87
8/4-in.	180	145	90

BEECH

4/4-in.	125	100	62
6/4-in.	150	112	67
8/4-in.	167	127	72

CHERRY

Same as Appalachian

RED GUM—PLAIN

4/4-in.	200	150	70
6/4-in.	230	170	75

RED GUM—QUARTERED

4/4-in.	225	175	75
6/4-in.	250	200	80
8/4-in.	260	210	95

SAP GUM—PLAIN

	FAS	No. 1C	No. 2C
4/4-in.	125	105	47
6/4-in.	155	135	
8/4-in.	160	140	

HACKBERRY

4/4-in.	110	90	65
6/4-in.	130	108	76
8/4-in.	135	110	75

HICKORY

Temporary suspended

MAGNOLIA

4/4-in.	170	135	78
6/4-in.	185	143	87
8/4-in.	205	150	90

SOFT MAPLE—WHAD

4/4-in.	131	110	67
6/4-in.	145	120	77
8/4-in.	155	125	80

SOFT MAPLE—WHND

4/4-in.	115	90	60
6/4-in.	130	105	75
8/4-in.	135	110	80

RED OAK—PLAIN

4/4-in.	180	105	63
6/4-in.	190	135	
8/4-in.	200	140	

WHITE OAK—PLAIN

4/4-in.	185	115	63
6/4-in.	195	140	
8/4-in.	205	145	

PECAN

	FAS	No. 1C	No. 2C
4/4-in.	117	97	55
6/4-in.	130	110	65
8/4-in.	155	130	70

POPLAR—PLAIN

			No. 2A
4/4-in.	170	130	80
6/4-in.	185	140	87
8/4-in.	205	150	90

SYCAMORE—PLAIN

			No. 2C
4/4-in.	117	97	60
6/4-in.	125	105	60

TUPELO—PLAIN

TUP TEXTURE—DEEP SWAMP

4/4-in.	125	105	47
6/4-in.	155	135	
8/4-in.	160	140	

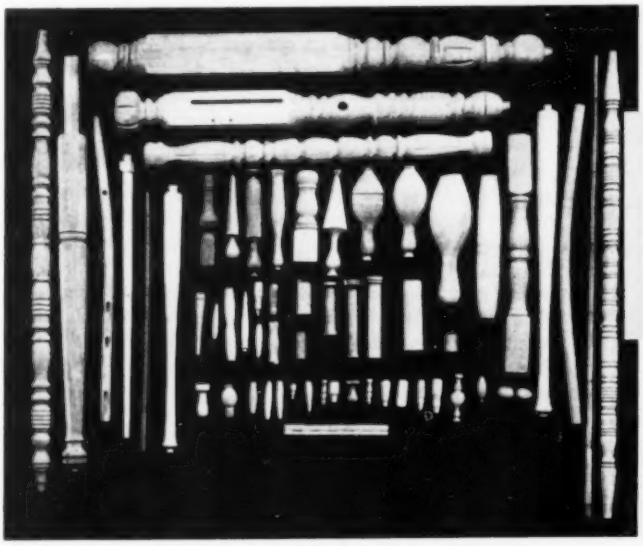
WILLOW

4/4-in.	142	120	60
6/4-in.	142	122	67
8/4-in.	150	125	70

APPALACHIAN HARDWOODS

F.O.B. mills—Johnson City, Tennessee area—estimate of present FOB Appalachian mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade of hand-sawn Appalachian hardwood in carload quantity, random widths & lengths, rough, air dried, & graded in accordance with NHLA rules of inspection. Prices in dollars per M'. on straight cars of upper bracket grades, premiums are frequently being paid. Basis selected for the purpose of indicating transportation costs to principal consuming markets from Johnson City, Tennessee area.

(Continued on page 22)



IF IT'S TURNED, A

NASH

CAN SAND IT!

WRITE FOR DETAILED INFORMATION, AND SEND SAMPLE STOCK FOR DEMONSTRATION
Beaded Turning Sanders, Spool and Bobbin Sanders, Automatic Round Stock Sanders, 4 and 12-spindle Upright Universal Power Feed Boring Machines, and other special machines.

IF IT'S ROUND NASH CAN SAND IT

J. M. NASH COMPANY

DEPT. 50, 2359 N. 30th ST. • MILWAUKEE 10, WISCONSIN

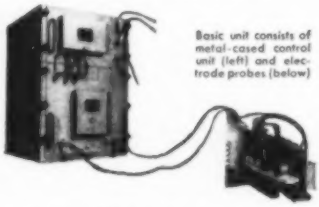
MANUFACTURERS OF *IMPROVED* MODERN WOOD-WORKING MACHINERY

New, Automatic Continuous Moisture Detector

Here's a completely new device which stops costly moisture trouble before it starts, helps you manufacture better products—more profitably!

Photo shows installation with automatic marking device. Red ink is placed on all stock containing more than desired moisture content.

Quick Facts About Laucks Sentry Continuous Moisture Detector



Basic unit consists of metal-cased control unit (left) and electrode probes (below)

- Gives 100% automatic, positive continuous detection of moisture in veneer, core stock, pulpwood, lumber or other material in which moisture is a problem.
- Is a production machine—not a hand operated meter.
- Does not impede or slow production.
- Can be used on any wood species. Sensitivity: 0.1%. Can be set to check any moisture content common to woodworking practice.
- Will detect moisture regardless of where it occurs in material.
- Can be arranged to mark excessively wet stock, ring bell or activate automatic kick-off.
- Installed by factory-trained technicians. Requires no special operators — your present personnel can operate it after 5 hours instruction.
- Use-tested for over a year. Developed by Research Foundation of West Coast plywood industry.

NEW LAUCKS SENTRY Continuous Moisture Detector gives automatic, continuous production-line control of veneer or core stock moisture content—*before assembly.*

Built to meet rugged service requirements, Laucks Sentry is installed on present production equipment, operates at normal production speed, does not interrupt flow of material, requires no special operators.

Completely accurate, completely dependable, this remarkable new device can be adapted to virtually any manufacturing process in which moisture is a problem. The head of the Pacific Northwest furniture manufacturing plant in which Laucks Sentry was use-tested for over a year reports that it "paid for itself in less than six months." Other installations are being made in plywood and pulpwood plants and an adaptation is being developed for use in connection with kiln dried lumber at large sawmills.

If You Have a Moisture Problem, Write Details Today for Free Consultation

LAUCKS Sentry

PAT. APPLIED FOR

Continuous Moisture Detector

Laucks Sentry Products

4441 Stuart Bldg. Dept. LL9, Seattle 1, Wash.

Manufactured by Instrument Division, Laucks Laboratories, Inc.

Kimpak Float Packaging*

CAPTAIN'S CHAIR
surface protection

Cuts shipping costs— reduces damage in transit!

How easy it would be for this fine chair —or any piece of furniture—to arrive at its destination unfit for use! Shock, vibration, press-marking, scratching—any one or all of these hazards can cause serious damage to inadequately protected furniture. Yet damage has been reduced to a minimum by the many manufacturers who employ KIMPAK* Float Packaging. It provides optimum shipping protection at lowest true cost—for any kind of furniture.

KIMPAK protective cushioning is soft, clean, and flexible—as easy to apply as wrapping paper. It's available in rolls, sheets or pads in various thicknesses, backed or unbacked, to suit *your* packaging requirement. But KIMPAK not only provides the necessary cushion to float your product to market damage-free, it also serves to make—and *keep*—your package as neat, clean, and attractive as the product itself.

Because of these many advantages, countless manufacturers of not only furniture but many other products have switched to KIMPAK. For complete information and help regarding your particular packaging operation, see your nearest KIMPAK distributor listed in classified telephone directories under "Packing Materials" or "Packing Materials—Shipping"; or write to Kimberly-Clark Corporation, Neenah, Wisconsin.

Kimpak
REG. U.S. PAT. OFF. & FOREIGN COUNTRIES

A Kimberly-Clark Crepe Wadding Product

*T. M. REG. U. S. PAT. OFF. & FOREIGN COUNTRIES

PROTECTIVE CUSHIONING

1. 8" x 12" pads of KIMPAK are taped to exposed leg surfaces of chair.

2. A larger pad of KIMPAK is applied to back of chair.

3. Cut-away view of completed package —two chairs per container.

Captain's chair illustrated is a product of the Fernwood Furniture Company, Los Angeles, California.

— TWO FREE BOOKLETS! —

KIMBERLY-CLARK CORPORATION
Neenah, Wisconsin W 1051

Please send me free, the following:

- ☐ Float Packaging booklet.
- ☐ Data File on Furniture Packaging under Consolidated Freight Classification.

Name .....

Address .....

City, Zone, State .....

Our product is .....

(Continued from page 19)

TOUGH ASH

	FAS	FIF	No. 1C	No. 2C
4/4-in.	160	150	110	67
6/4-in.	180	170	122	72
8/4-in.	190	180	147	85

BASSWOOD

				No. 2A
4/4-in.	180	170	130	84
6/4-in.	190	180	137	94
8/4-in.	195	185	147	96

BEECH

				No.2C
4/4-in.	145	135	110	75
6/4-in.	160	150	120	75
8/4-in.	170	160	130	80

BIRCH

4/4-in.	205	195	140	80
6/4-in.	220	210	150	85
8/4-in.	230	220	155	90

BUCKEYE

4/4-in.	135	125	100	65
6/4-in.	160	150	115	73
8/4-in.	165	155	120	78

CHERRY

4/4-in.	200	190	135	80
6/4-in.	235	225	160	85
8/4-in.	250	240	170	90

CHESTNUT

4/4-in.	165	...	115	60
6/4-in.	170	...	120	62
8/4-in.	175	...	125	62

HICKORY

4/4-in.	125	115	78	53
6/4-in.	145	135	86	58
8/4-in.	165	155	80	60

HARD MAPLE

4/4-in.	190	180	125	80
6/4-in.	200	190	135	84
8/4-in.	205	195	145	90

SOFT MAPLE

4/4-in.	160	150	115	67
6/4-in.	170	160	125	69
8/4-in.	175	165	130	72

RED OAK—PLAIN

	FAS	FIF	No. 1C	No. 2C
4/4-in.	185	175	120	
6/4-in.	200	190	135	
8/4-in.	215	205	145	

WHITE OAK—PLAIN

4/4-in.	200	190	125	
6/4-in.	220	210	145	
8/4-in.	225	215	155	

WHITE OAK—WHND

4/4-in.	115	105	85	..
6/4-in.	140	130	110	..
8/4-in.	150	140	115	..

YELLOW POPLAR—PLAIN

				No. 2A
4/4-in.	210	200	140	88
6/4-in.	220	210	150	93
8/4-in.	230	220	160	..

POPLAR SQUARES

	FAS	No. 1C & 8D
4x4-in.	245	175
6x6-in.	240	190
8x8-in.	340	240

WALNUT—STEAM TREATED

	FAS 6' & up	FIF 6' & up	No. 1C	No. 2C
4/4-in.	350	305	185	80
6/4-in.	370	325	210	95
8/4-in.	385	340	235	100

Walnut list reflects average fob mill, all areas. Basing point not generally observed.

NORTHERN HARDWOODS

Estimate of present FOB Wausau, Wisconsin mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Northern hardwoods in carload quantities random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'.* On straight cars of upper bracket grades, premiums are frequently being paid.

BROWN ASH

	FAS	No. 1C	No. 2C
4/4-in.	145	105	73
6/4-in.	155	120	83
8/4-in.	160	130	88

BASSWOOD

4/4-in.	180	125	78
6/4-in.	190	135	88
8/4-in.	195	145	96

BEECH

4/4-in.	145	100	68
6/4-in	160	115	78
8/4-in.	165	120	80

BIRCH

4/4-in.	265	145	80
6/4-in.	275	160	90
8/4-in.	280	175	100

ROCK ELM

4/4-in.	135	115	65
6/4-in.	145	125	76
8/4-in.	150	135	80

SOFT ELM

4/4-in.	125	105	71
6/4-in.	135	115	81
8/4-in.	140	120	86

HARD MAPLE

4/4-in.	190	130	78
6/4-in.	200	140	81
8/4-in.	205	145	82

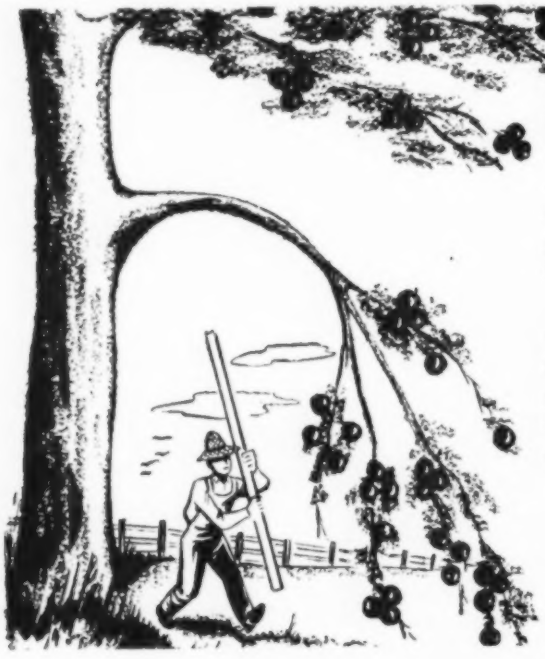
SOFT MAPLE

4/4-in.	155	120	72
6/4-in.	170	130	82
8/4-in.	185	140	90

RED OAK

4/4-in.	175	125	77
6/4-in.	185	145	82
8/4-in.	195	155	85

* Air dried Northern Hardwoods are no longer available and sales presently being made cover green stock or stock only partially seasoned. Orders are being placed for stock to be cut and shipped green when accumulated.



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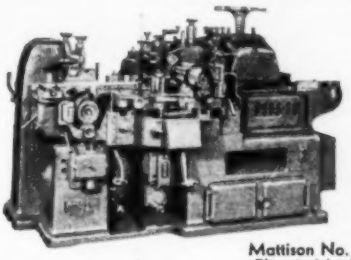
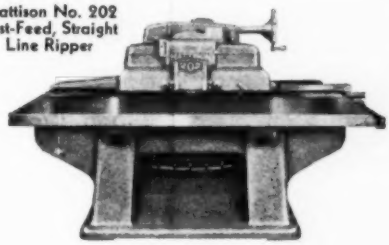
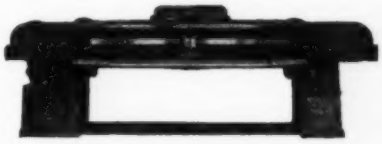


Mattison No. 276
Electric Moulder

Mattison No. 202
Fast-Feed, Straight
Line Ripper



Mattison No. 57F
Automatic Shaping Lathe



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City ..... State .....

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Furafil 100 is a new low-cost extender for phenolic resin glues used in exterior plywood. This new product is commercially available now and is shipped in carload or truckload lots from Tacoma, Washington and Sharonville (Cincinnati), Ohio.

Furafil 100 is a chemically processed agricultural material available throughout the year. It is made up principally of modified lignin, cellulose, and resinous material with the lignin and resins accounting for about 40% of the total. Furafil 100 is ground to meet the following specifications:

Through 100 mesh—99%
Through 200 mesh—95%
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Glue formulations with Furafil 100 are now in use in the Douglas fir plywood industry. Furafil's low cost, high resin content, uniformity and ready availability make it an excellent glue extender.

Consider Furafil 100 as a new means to improve your glue line quality and lower your cost. Write for samples and try this new extender.

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CHEMICALS DEPT.

C. D. DOSKER

O. H. SCHRADER, JR.

T. D. PERRY

Wood Salutes

With this issue, we are saluting three more top rank executives, each of whom is contributing his expert knowledge and experience in an important department of the forest products industries.

C. D. Dosker

C. D. (Bob) Dosker, president of Louisville's Gamble Bros., and his company are widely known throughout the United States and abroad for product development. His contributions to the industry include studies classifying waste of conversion into fixed and variable waste, and the typing of boards to determine methods of conversion. His experience includes almost every phase of lumber manufacture.

He has been a great advocate of product research and holds a certificate of Commendation for "outstanding service to the United States Navy during World War II in connection with the development of manufacturing processes and procedures for the production of wood laminates for marine service in both curved and frame sections.

His company maintains a small product research laboratory, which is under his personal direction.

Dosker is one of the organizers, and a past president, of the Hardwood Dimension Manufacturing Association; a director of the National Lumber Manufacturers Association; a member of the Forest Products Research Society and an associate member of the Society of American Foresters.

(Continued on page 56)

O. Harry Schrader, Jr.

Dr. O. Harry Schrader, Jr., managing director of Douglas Fir Plywood Association, came to the industry trade association Dec. 15, 1949 from his former post as director of the State of Washington Forest Products Institute. His background covers more than 15 years experience in building products merchandising and research in laminated wood products and wood utilization.

Before coming to the Association, Schrader was an associate professor of forest products at the University of Washington. During the war, Schrader did research work for the Curtis-Wright Aircraft Co. and was director of a wartime project undertaken jointly by the War Production Board and Timber Structures, Inc., of Portland, Ore., to develop fabrication and uses for glued laminated timbers.

Schrader took his bachelor's degree in forestry at the University of Washington in 1931; he earned a master's degree at the University of Wisconsin, during which time he did research work at the U. S. Forest Products Laboratory, and he won his doctorate at Yale University.

He is a trustee of the Pacific Northwest Section of the Forest Products Research Society and he is a member of the Society of American Foresters, American Society of Testing Materials, American Wood Preservation Association and Pacific Coast Building Officials Conference.

Thomas D. Perry

Thomas Doane Perry is one of the Deans of the Forest Products Industry. Born in New England and raised on the plains of Nebraska, he was graduated from Doane College in 1897 and Massachusetts Institute of Technology in 1900.

From 1911 until 1924 he was vice-president and manager of the Grand Rapids Veneer Works. Consulting work with Bigelow, Kent & Willard kept him on the go between 1925 and 1929. He joined the staff of the New Albany Veneering Company in 1929 and was works manager there until 1936.

His decade of experience with Rohm & Haas as a development engineer from 1936 to 1947 brought him in wide contact with the entire forest products industry. He authored a pair of books which have become standard texts in the field. "Modern Plywood" and "Modern Adhesives" have received wide distribution and acclaim.

(Continued on page 56)

QUICK SOLUTION TO SERVICE PROBLEMS

When it comes to adhesives, you want prompt, efficient attention to your needs. And that's why so many woodworking men *depend* on Monsanto service.

For instance: In the South, from Monsanto's Southern distribution centers at Laurinburg, N. C. and Anniston, Ala.—truck shipments regularly *speed* job lot orders over a radius of three-hundred miles, providing the best service and fastest delivery to manufacturers in this area.

For *extra* economy of purchase—as well as for fast, sure service—many manufacturers in the South, and from Maine to California, prefer to buy their Monsanto adhesives in tank car loads.

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SERVING INDUSTRY . . . WHICH SERVES MANKIND

Logging Equipment Per M. Bd. Ft.

Here's the answer to the equipment problem of how much gear is needed to log 1,000 board feet of lumber. Based on Western logging shows this information is vital to all lumber producers.

by BILL HOGAN

The amount of equipment required to produce a given quantity of saw logs varies considerably from one operation to the next. Output is much higher on an "easy chance" than on a difficult one. For this reason few persons have been willing to make unqualified statements as to average production figures. With sufficient data available, however, averages can be obtained that are reliable enough to indicate to equipment manufacturers and others the amount of equipment needed to produce a given quantity of logs.

Information on the numbers of various equipment items used for farming and other activities is available and published periodically. This is not true of logging and such data are generally considered to be obscure. It is true that compiling such data is difficult. In the western states, however, there are publications containing information of this nature that can be compiled. An effort to do this has been made and the results are presented in Table 1.

The above information can be very useful if it is used with a moderate amount of judgment and the basic data are understood. Individual tractors for instance are known to produce up to twice as many feet of logs per day as that shown above. However, there are other tractors on the job building landings, spur roads etc. with perhaps one in the shop for repair. Bare tractors and tractors with bulldozers are nearly equally divided. Tabulation showed 2486 of the former and 2609 of the latter on the operations listed.

Table 1

DAILY PRODUCTION IN M'BM PER UNIT PER DAY

State	Tractor or Dozers	Power Saw	Crane or Shovel	Donkey	Trucks	Miles of Road
Washington	14.8	21.6	77.2	25.4	11.1	5.9
Oregon	22.3	21.3	94.9	32.8	13.3	1.9
California	18.7	23.3	114.4	47.3	12.8	6.5
Arizona	16.4	17.3	83.3	25.4	5.0	3.9
New Mexico	12.9	12.7	59.4	25.0	4.0	1.6
Idaho	19.5	18.7	99.0	20.3	8.5	2.1
Montana	8.5	14.5	70.5	33.3	8.4	2.5
Colorado	9.5	10.7	19.6	8.0	3.6	1.3
Wyoming	5.3	6.3	...	10.0	3.8	2.0
Utah	10.7	8.1	30.0	...	3.4	0.4

Power Saw Production

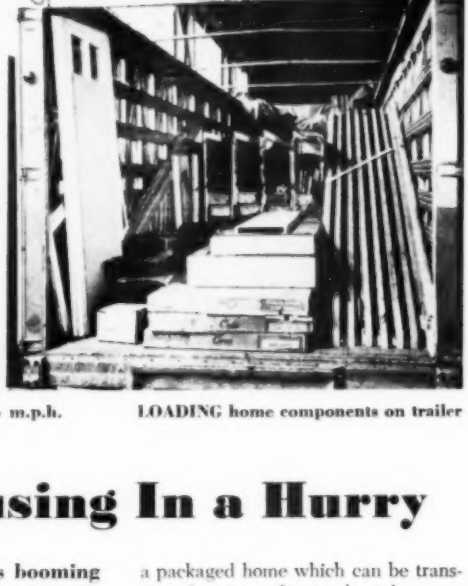
Production of power saws is probably fairly close to average output in some states and a little high in others. This discrepancy is due to the fact that some companies owning saws also contract cutting with individuals owning their own saws.

There is probably some overlapping in the production of shovels and donkeys because they are used for both skidding and loading. On some operations one donkey is used for yarding and another for loading. Thus each may handle 50 M'BM of logs, but the net per donkey is only 25 M'BM. Many operations in the Pacific Northwest use both shovels and donkeys for loading, thus causing the output per shovel to be too high. As an example, there are 86 shovels listed in Oregon by companies not also owning donkeys. Their average output is 81.7 M'BM per day. Therefore in these three states, the output per shovel is probably high while that of donkeys is correspondingly low. An interesting sidelight is the decline of the once famous steam donkey and the increasing number of diesel donkeys. Only 5 percent of over 1800 donkeys listed in two states were steam whereas 33 per cent were diesel.

The output per truck is considered very reliable and reflects to some extent the long hauls encountered in

(Continued on page 57)

CONVEYOR line construction with house panels moving at two m.p.h.



LOADING home components on trailer

P & H Provides Housing In a Hurry

Factory construction of two and three bedroom houses is booming all over the country. Here is how one of the nation's leading manufacturers builds a complete package that is delivered by trailer truck to the site.

One of the brightest spots in an otherwise spotty home construction picture during 1951 is the prefabricated or factory constructed house field. As reported in "Industry Trends" in the September issue of WOOD combined with WOOD PRODUCTS, the PHMI stated that 25,662 houses were constructed by factory methods in the first six months of 1951 as contrasted to 19,954 during a comparable period during 1950.

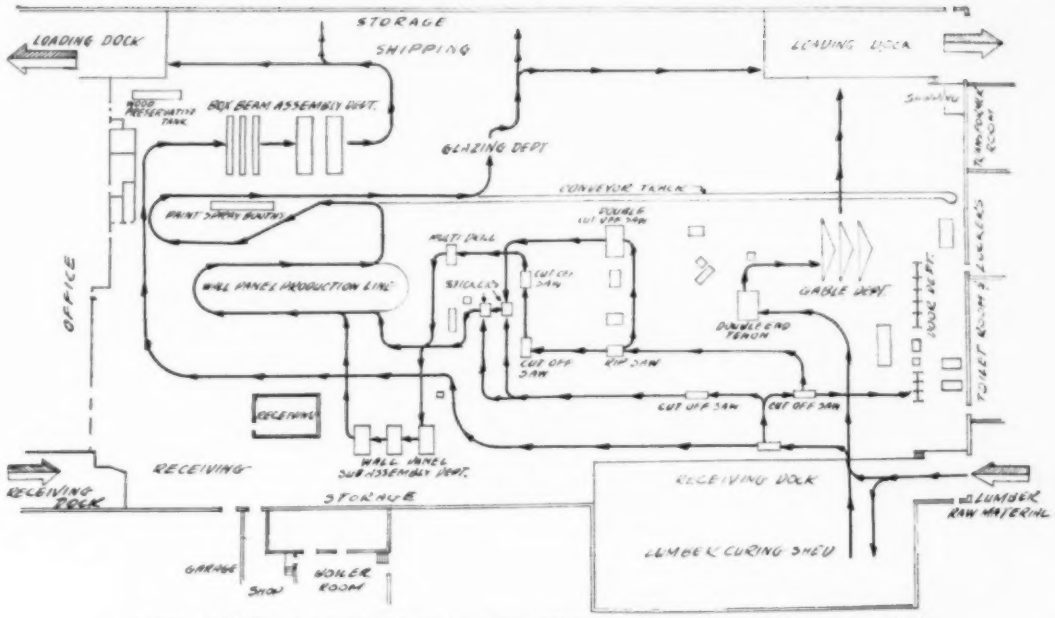
Defense area housing, financial limitations, and general construction costs have done much to bring about the present market situation. The factory homes men have played a big part in keeping home construction moving.

One of the old-timers in this field is the Houses Division of the Harnischfeger Corporation. Since 1935, this P&H division, located at Port Washington, Wisconsin, has been researching the problem of factory fabrication. Over $3,000,000 has been spent during this 16 year period in creating a packaged home which can be transported in a trailer truck and set up quickly at the home site.

The modern 70,000 sq. ft. plant, completed in 1946, boasts one of the few moving production lines (traveling at a two mph. rate) in the house fabrication field. From the layout accompanying this article it is possible to trace the flow of lumber, and other raw materials through the fabrication stages on to the trucks which move the homes to the home sites from New York and Florida to Nebraska.

Douglas fir plywood and lumber as well as Ponderosa pine are the principal species used. The exterior walls are of 5/16-in. CD grade plywood, the floor is ¾-in. CD grade. For the

A HOME to be proud of, the P&H house on its suburban lot. COMPONENT parts are shown in the drawing at the right: 1. Truss supports; 2. Roof sheathing; 3. Roofing paper; 4. Asphalt shingles; 5. Gypsum board ceiling; 6. Wall framing stud; 7. Upson board with moisture barrier; 8. Fiberglas insulation; 9. Plywood sheathing; 10. Asphalt barrier; 11. Shakes or siding; 12. Box beams; and 13. Flooring.



PLANT LAYOUT of the 76,000 sq. ft. Port Washington plant where P&H homes are built.

glued up box beams, the 5/16-in. CC grade is used.

Kiln dried material is shipped into Port Washington by the freight car from Western producers and moves into storage areas. As cutting orders for a certain number of homes are released, the lumber moves into the plant and is processed by rip saws, stickers, and molders for cutting and surfacing to size. All framing members and other solid lumber pieces are S4S before use.

Components Move Easily

Various sub-assembly spots are so situated as to feed the component panel parts and other units to the main conveyor line in logical sequence. On the conveyor line, the studs and joints are framed in a rigid steel jig. This framing moves along to the spot where the exterior panels, coated at framing contact spots with resorcinol adhesive, are placed on the frame. In order to provide the proper pressure for curing, the exterior plywood panel is nailed with serrated steel nails by a Powernail unit. The panel and frame are flopped over on the line and Fiberglas Insulation is applied. An Upson panel, with a coated vapor barrier, is applied to the interior side of the frame and glued as with the exterior plywood panel. The result is an entire wall section in any one of various sizes up to 8 ft. by 20 ft.

Stressed skin construction, a term P&H uses and originally designated as such by the U. S. Forest Products Laboratory, has been one of the basic features of factory construction. It has also furnished the engineering department with some headaches, now overcome. The inherent bowing resulting from uneven moisture contents of the exterior and interior surfaces in use has been eliminated. All interior panel stock is worked at a basic six percent maximum moisture content; while exterior panel stock is kept at a minimum 12 percent moisture content. These moisture contents are approximate to those which the panels will have in use.

Special type serrated or barbed nails with very short penetration are sunk ⅛-in. under the surface of the Upson panel so that if the core shrinks, the nail will have room to back out without disturbing the spackle "filler." These nails along with the other nails used for pressure applications were developed by P&H engineers along with the Powernail Co. for the hand driving units used for panel construction.

Spraying Wall Panels

Wall panels, when completed, move along the conveyor line to the spray booth where they are given a prime coat of toxic sealer. Panels leave the line with the spaces for windows and millwork cut into them. These windows are fitted and glazed in the adjacent glazing department. All stock for millwork is manufactured in the plant. Incidently, all millwork, trim, box beams, roof trusses, and sidewall stock are dipped in pentachlorophenol to protect them from decay.

For floor beams, a glued box-beam construction is used. These beams, 4¾ in. by 7½ in., are made of lumber top and bottom and 5/16-in. plywood on the sides. Glued with resorcinol and nailed to get the 50 psi. pressure for curing, they have 2 by 4's placed 24 in. on center internally for added strength. These beams and their plywood deck components are manufactured in a spot near the loading dock.

One of the biggest fabrication pieces is the roof gable, manufactured in much the same way as the wall panels, these are made in rigid steel jigs. The exterior sheathing is glued and nailed to the gable framing and so fitted that no site trimming is necessary.

A production problem of large proportions is keying part numbers so that outgoing loads have a complete house. Cutting orders go through the plant for a certain number and type of houses at one time. All components are keyed and move toward the loading dock bays where they are kept together by house type number. Loading is then done with inspectors checking off each part as it moves on the truck.

In keeping with the modern design trends, P&H houses have ceiling

(Continued on page 58)

ON THE FIRE LINE powerful hoses fed by pumper trucks combat the fire.

CREW chiefs with "walkie talkie" survey damage.

Fire at Randle Valley

It could have been your timber holdings which went up in smoke. Here's how cooperation pays off in protecting timber against fire as demonstrated in Washington State last July.

Fire is the forest products industry's arch enemy. Plans for sustained yield and planned harvesting can be wiped out at the drop of a match. Inventories, and operations based on a certain number of harvestable acres of timber can vanish into smoky air when fire strikes. Management having timber holdings must know how to cope with this problem. How fire protection works in the timber state of Washington gives a clear insight into what cooperation is necessary to protect timber holdings.

Two million dollars in time, timber and money went up in smoke in mid-July in the Cowlitz region of Washington state when the Randle Valley fire hit. (It could have happened on your holdings.) Without the prompt cooperation of state, local, and private fire protection groups, the fire could have easily spread much further and done hundreds of thousands of dollars more damage. As it was the fire burned 1,200 acres of prime saw timber, 2,000 acres of new tree crops and 2,000 acres of cutover land which was in the process of reseeding.

All Spring and Summer the land had been "dynamite dry." In April, an incendiary set six fires in rapid succession in the Randle Valley. Prompt action of fire fighting organizations under District Warden Bill Bartels brought these fires under control in 24 hours.

On July 11, 1951, at 11.30 a.m., the temperature at Randle Valley was 90 degrees F., and the relative humidity ranged between 14 and 16 percent. Fuel moisture was 4. The Kosmos Mountain lookout noted a wisp of smoke in the farmyard of a local rancher. He grabbed for the radio transmitter and called the dispatcher at Elbe. During the few seconds the call had taken the fire had developed a smoke column. It spread, went up the hill, went into green timber, hit the top of Huffaker mountain (3900 ft.), and was two miles away in virgin timber in one hour.

They Come Running

The State swung men in from almost all Western counties; as far North as the Canadian border, as far south as the Oregon border county, to fight the fire. Bernard Orell, Washington State Forester, turned his headquarters into the fire-fighting command post and the radio network

CAT operators from the Western part of state aided in making roads.

SNAG FELLING with power saw was a hot, tough job.

swung into action. Mountain lookouts, ranger stations, state forestry halls, and the Rainier Forest Association were all linked by radio. It was a rush job and right from the start a working organization was created.

Effective fire fighting was impossible in the first hours as the fire was "spotting" long distances ahead. One spot fire was actually miles ahead of the main fire on the first day according to reports. The fire raged throughout the night and spot fires added to the grimness of the situation.

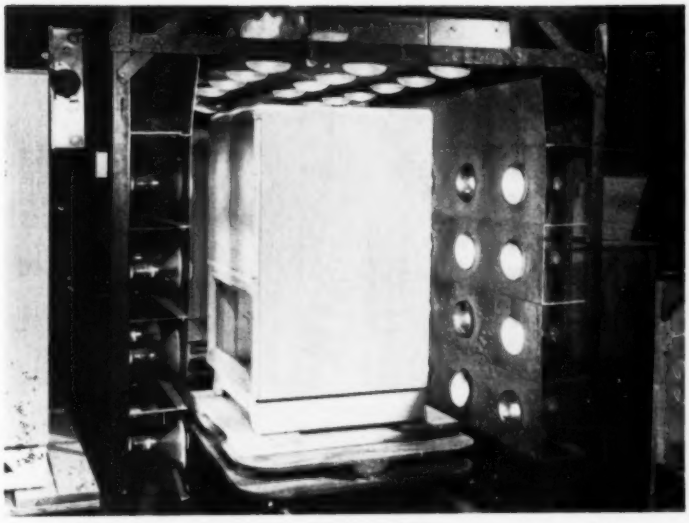
By morning, July 12, some 15 tractors were ready and the fire was attacked along the head and flanks. Two hundred men from the Kosmos Timber Co., as well as nearby gyppo operators hit the fire lines. As trails were cut, tank trucks cooled off and extinguished the fire for some distance back to its center. Two hundred army men from Fort Lewis were rushed, fully equipped, to the scene to dig the hand trails necessary in areas where terrain made it impossible for the "cats" to go.

State operated, 500 gallon pump trucks were soon on the job. The Rainier Forest Association added three trucks while the Weyerhaeuser Timber Co. provided two trucks. One was a 2,000 gallon unit, while the other was 1,200 gallon rig. All told there were 41 tank trucks racing along the fire trails.

Some 190 state men, the Kosmos Timber crew, Weyerhaeuser Timber men, and loggers from St. Regis Paper Co., Ladd Logging Co., and the Harbor Plywood Corp. joined by the independent loggers—gyppos did the dirty, dangerous job of suppressing the raging fire. Loggers operating power saws, felled thousands of snags; they located fire trails; "cat" operators put their big machines against the fire's flanks and held it.

It was a cooperative job, a dangerous task undertaken when fire control seemed impossible. It was done, and control was largely gained in the first four days. Each organization has a right to be proud of the task that was done at Randle Valley.

The men like State Forester Orell who are responsible for the building of fire protection networks linked by modern communications systems and man-powered by all interested parties and groups are the first line of defense against our industry's greatest enemy—fire. The tale of what can happen if a barn accidently burns, or a match is carelessly dropped shows that fire protection costs from a management standpoint are worth it. . . for as any forest industry man knows, embers are no investment.



A BANK of infra-red lamps cured the pinholing and graying problems.

Infra-Red Drying

Los Angeles cabinet manufacturers found that adding an infra-red drying booth to the finishing line cut down on two big finishing bugaboos.

Los Angeles T-V and radio cabinet manufacturers have been faced with a difficult problem of blistering finishes. It has been extremely difficult to apply finishes on a relatively high speed production line without incurring very severe pin-holing or blistering. Furthermore, they were finding that there was a tendency for the filler to gray.

The pin-holing was usually evident after application of the sealer, but in some cases, its severity did not become apparent until after the application of the first top coat.

In most instances, the graying of filler did not develop until several days after the completion of the finishing operation. In certain cases it would be noticeable the same day the finishes were applied. The particular pattern observed relative to the failures indicated that they were more prevalent on Monday and Tuesday than during the balance of the week.

After making several careful examinations of cases which had stood in the plants over Saturday and Sunday, Sherwin-Williams furniture technical department men noted that there was a considerable amount of grain raising on the white wood as compared to cabinets which had just been sanded in the wood shop. Re-sanding some of these cabinets which had stood over the week-end eliminated pin-holing and graying difficulties.

Obviously this was not a completely satisfactory solution. Because of the grain raising it was evident that enough moisture was being absorbed from the atmosphere to cause the characteristic swelling. It was felt that this absorbed moisture was probably being driven off during final sanding operations by the heat normally produced by this operation. If the cabinets were allowed to stand very long before finishing the moisture would again be absorbed into the surface of the veneer.

The obvious solution was to apply heat to the cabinets in the white wood just prior to the finishing operation. After several experimental attempts indicated that this produced good results, a permanent installation of infra-red lamps was made on the finishing line just ahead of staining booths in a Los Angeles plant. The results were gratifying, and many concerns in the Southern California area who have had this trouble have made installations of this nature with the same success.

In some cases, infra-red lamps are also placed just after the staining application to quickly dry-off any excessive water which may be absorbed during the staining operation.

AGE PLUS EQUIPMENT is an unbeatable combination in a maintenance department.

Tool Maintenance Pays

Saw and knife maintenance departments are invaluable aids to keeping production at a high level. Here's how to make that department pay.

by PAUL GRAHAM

The saw and knife maintenance department is one of the most important of any of the departments that make up a lumber manufacturing or wood products secondary manufacturing plant. Regardless of plant size, this department is always the pace setter. The degree of efficiency with which this department is operated determines product quality.

The saw and knife maintenance department must be as carefully planned and operated as any of the manufacturing departments. It is not enough to provide modern saw and knife fitting equipment and then expect relatively inexperienced and unskilled labor to produce good results right from the start.

Neither can the most experienced and skilled operators get good results from inadequate and worn-out equipment. Nor can successful results be obtained by operating on the misguided theory that unskilled personnel will produce better results by the use of hand methods or less complicated machinery.

Average wood products manufacturing plants and larger sawmills have long recognized the importance of proper saw and knife maintenance. Most of these have set up and maintained separate saw and knife maintenance departments fairly well equipped with required equipment and tools. Their chief fault has been a tendency to allow this equipment to deteriorate through wear and long use.

It must be granted that there can be found an occasional plant where the most modern equipment is found in good condition and is manned by expert operators who really know their business. Two significant facts will be noticed at these plants. First, the bugaboo of shortage of skilled personnel has been removed by means of an intelligent training program which insures a steady backlog of skilled operators; second, all trainees do not get comprehensive training in all phases of saw and knife maintenance. The trend is rather to train experts in various phases of department operations to obtain superior results in a particular line.

Too Many Tools

There have been a number of instances where an errant plant management has gone overboard and purchased more maintenance equipment than could possibly be used at that particular plant. Aside from the needless investment of capital in excess equipment, this would not be too bad a fault if there was not also a tendency for management to subsequently demand from the saw and knife maintenance department a quantity and quality of output that is entirely outside the realm of reason.

This naturally puts such a strain on department personnel that management soon finds itself possessed of considerable fine equipment but with nobody to operate it. It is very important that management be made to appreciate the capacity limits of such equipment as well as those conditions of saws and knives that are beyond the ability and capacity of the individual operator to remedy. It is equally important that the saw and knife maintenance department be consulted by management prior to the purchase of new saws and machine knives.

Saw and knife maintenance department requirements vary widely with the kind of plant, machinery used in manufacturing the product, and the nature of the product being manufactured. Unfortunately most small plants do not go quite far enough in providing for their maintenance needs.

A recent study made of average small circular sawmills in the Tennessee Valley discloses that an average sawmill, operating with just one saw, shuts down about 40 minutes each day to allow the sawyer to replace bits, file and fit up the saw. Not only was production of the mill stopped for this period of time daily but five other men were idle until the saw was started up again. The cost of the idle time and loss of production would have more than compensated for the purchase of another saw and paid the wages of a separate saw filer working in special quarters.

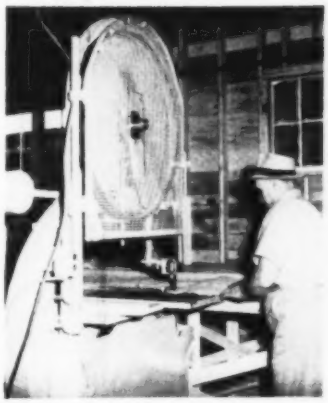
Big Plants Guilty, Also

The small plant is not the only offender. A consulting engineer's report submitted after a survey in a fairly large furniture plant contained a recommendation for the installation of a separate well-equipped saw and knife maintenance department. An estimated minimum savings of about $5,000 annually was projected, based upon increased production, reduction of machine down time, longer cutting tool working life, lower maintenance costs, and lower power requirements.

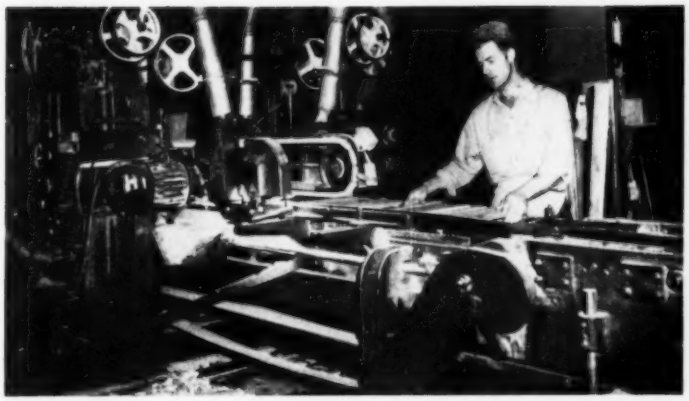
In this plant the cut-off saw operator fitted up all rough mill saws at a bench near his machine, setting and filing them by hand, and jointed them on the machines. His helper operated the cut-off saw during these saw fitting intervals but his inexperience and inferior knowledge contributed to lower grade cuttings.

Operators of knife cutting machines in this department (planer, moulder, jointer, etc.) sharpened their own knives at grinding stands scattered throughout the department and set up their own cutterheads. The

(Continued on page 62)



WIRE GUARDS on band saw cuts accidents.



ALL EXPOSED moving parts on the tenoner have been carefully guarded.

Boro Cuts Compensation Costs 62%

Management-employee cooperation is largely responsible for the remarkable success of the Boro Wood Products Co. safety program. The workman's compensation savings prove that Safety Pays.

by H. M. ALEXANDER
Safety Director,
Boro Wood Products Co.

Boro Wood Products Co. manufactures a complete line of wood kitchen cabinets and sink tops which are distributed through building contractors for original installation in new home construction.

A few years ago it was discovered that while management was watching the corners closely on what was paid for materials and production, there was a sizeable leak through lack of the proper attention to employee safety habits.

An increasing number of lost time accidents was not only adding to insurance costs but there was constant interference with production as a result of these frequent interruptions. A foreman would have to take time to arrange for care of the workman who got hurt, a new employee would have to be trained and production was bound to suffer.

About three years ago this summer, Messrs. Jack and Arthur Siegel, partners in company ownership, convinced that the operation at that time was wasteful of both men and materials, called in a safety engineer of the insurance carrier, Employers Mutual of Wausau, and asked for specific recommendations for improvement of the situation.

The engineer pointed out that the primary requirement in a safety program that would benefit the operation had already been partly met by the interest of management as indicated by their realization of the need for a definite and constructive program. He stated that no program could ever become successful unless the management gave much the same attention to safety that they gave to production problems.

This appeared to be particularly important in this case as plant superintendents had been coming and going with alarming frequency and the turnover of foremen and production employees wasn't helping production costs either.

Management Starts Program

It was decided to lay the cards on the table to the Boro organization and in August 1948 a meeting was held to announce the details of a new safety program. This meeting was called by management and attended by all the plant foremen. It was emphasized that this matter of safety and accident prevention was of serious concern to management. The program was outlined in detail.

It meant that every foreman was to be responsible to see to it that the people in his department were trained how to work safely and that the machines in each department were to be guarded as completely as possible. Collectively, the foremen were responsible for the safe operation of the plant. Safety meetings were arranged to be held once a month. These dinner meetings are held at some pleasant eating spot within easy driving distance of the plant, and are attended by both foremen and top management.

There is no question that there has been a gradual improvement all along the line, since the start of the program. In 1947, for instance, there were 43 lost time accidents. In 1949 there were 31. In 1950 there were only eight.

Many factors have contributed to this improvement. In the first place as plant conditions have become safer, there has been a noticeable improvement in labor turnover. This, in turn, helps to make for safer working as experienced well-trained workers do not usually have as many accidents. Considerable progress has been made in guarding of many of the more dangerous machines. But, most of all, there has been built up a consciousness of being careful. This is reflected in the lower costs of compensation for lost time and medical expense.

In 1945, for instance, the amount paid out for workmen's compensation was $9,872.00 and the medical cost was $1,998.00 . . . a total of $11,870.

In 1949 this total figure was only $2,184.00. They say that the actual costs of accidents to an employer are five times the specific cost of the medical and compensation costs. In this case the total cost of accidents in 1945 would have been $59,350.00. In the better years of 1949 this would have been $10,920. The difference of over $48,000 represents quite a few kitchen cabinets.

An analysis of the injuries which cause lost time and medical attention shows that primarily these are the re-

(Continued on page 58)

PLACING FACE VENEERS on a hardboard core in a Grand Rapids furniture factory. Note the single opening press.

Hardboard Speeds Furniture Production

Hardboard is being used in an ever increasing number of spots in furniture manufacturing according to a recent report given by Armin Elmendorf. This story is based on the article presented at the Fall meeting of the FPRS Midwest Section at Oshkosh, Wis.

by ARMIN ELMENDORF
Elmendorf Research, Inc.

A recent furniture survey conducted by the Elmendorf Research, Inc. staff revealed some highly important facts concerning the use of hardboard in this field.

Present day specifications concerning the use of hardboard are built around the use of Masonite hardboards although other hardboard products are available. The unique physical properties of hardboard are so outstanding that many millions of feet of the product are now in use in the furniture field. Plywood panels are being replaced by veneered hardboard in many cases. Hardboard is being used as a cross-band for desk and table tops. It has also been used for varnished, enameled, or unfinished panels. The use for hardboard in these catagories merits discussion.

Hardboard Properties

Hardboard now means high density wood fiber boards made by coalescing wood fibers in a hot plate press. They differ from older, laminated raw wood fiber boards in that they are harder, free of laminations, more scuff resistant and dimensionally more stable. The fibers are held together by chemical bond, by hydration, or by means of synthetic resin binders.

Some hardboards are made of wood particles that have been given a coat of a synthetic resin binder. When a thick mat of loosely felted, coated wood particles or granules is pressed between hot plates under heavy pressure, a particle to particle bond is acheived that gives the resultant board properties similar to those of a wood-fiber hardboard.

Hardboard density ranges from about 0.8 to 1.2. The expansion in thickness resulting from a 24 hour soak test is far less than that of raw fiber laminated boards. They have practically the same properties in all directions in the plane of the board, and there are no zones of high and low density within the board as in natural wood. Minute dimensional changes which do take place are uniform in length and width and are far less than wood's shrinkage or expansion across the grain.

Hardboards are also supplied which have an oil or resin treatment added. Called tempered boards, they are harder and stronger. Where maximum strength, surface smoothness, dimensional stability, and water resistance are desired, the tempered board should be used.

Most hardboards are 4 ft. wide and from 8 ft. to 12 ft. long, and are available in four major thicknesses—¼-in., 3/16-in., ⅛-in. and 5/16-in. Sanding ¼-in. boards to remove screen back gives one 1/10-in. hardboard.

Finishing Hardboard

Spray finishing and roll-coating hardboard surfaces are very practical because of the hard surface and freedom from annual ring structure. Mottled lacquers, straight lacquer and enamel finishes all work well.

Decorative synthetic resin sheets of phenolic and melamine are readily bonded with standard plywood bonding techniques. Urea and caseins are generally used for this purpose. Pressing is done at room temperature. Lithographic finishes are applied on an extensive scale. The pattern is picked up by a gelatin roll from an etched metal plate and transferred to the hardboard.

Hardboard Used without Veneer

Costing less than plywood, and being harder and flatter, hardboards are being used widely to replace thin plywood in the furniture field. The ⅛-in. thickness is generally satisfactory and a large amount of it, unveneered, is going into casegood backs, dust stops, drawer bottoms, and mirror backs.

The "modulus of rupture" or bending strength of hardboards range from 4,000 to 10,000 psi. Typical wet-process hardboards have a modulus of rupture of 5,000 to 6,000 psi. Tempered boards may have a modulus of 10,000 psi. and smooth 2-sides boards may be even stronger. The hardboards also differ from laminated raw-wood fiber boards in that they retain the greater part of their strength when soaked in water. They can be worked with ordinary woodworking tools even though their hardness exceeds that of most commercial hardwoods, and as they have no grain they do not split or splinter. Hardboards ⅛-in. in thickness can be bent readily with conventional equipment even to a 2-in. radius.

Hardboard Manufacture

Most hardboards are made by depositing or felting the fibers on a moving wire screen to produce a thick

(Continued on page 59)

How Drexel Trains Personnel

Here is a two-part story of the training program of one of the South's most progressive furniture manufacturers. While all plants have different training problems, the methods outlined here and presented at the recent FPRS National meeting will be of value in showing what can be done.

PART ONE
by G. MAURICE HILL
Drexel Furniture Co.

Five years ago the Drexel Furniture Company went through a major reorganization with major changes in top administrative personnel. This change came just prior to the end of World War II. At that time the staff had been heavily depleted by the needs of the Armed Forces and by loss of personnel to defense plants. While this situation was far from ideal, it did give the new management an opportunity to look at its organization in long range perspective and to plan to rebuild the organization on an effective basis with proper regard for the basic principles of good business and industrial organization, and the latest developments in this field.

At the end of that survey, management was of the opinion that the furniture industry was at least a full generation behind industrial development and organization in such fields as metal working, textiles, chemicals, electrical appliances and other related industries.

In order to meet this problem, a training program was developed with the following broad objectives:

I. Training of the present supervisory staff.

II. Orientation of new employees and training of workers with technical skills.

III. Training of a future management group.

An analysis of supervisory personnel, including all those men at the foremen level, as well as those above this level, revealed that the majority of all these people had little or no formal technical training. As a matter of fact, the majority of them had less than a high school education, and without the benefit of any training program.

A recent survey, conducted by an independent research organization, among top management and foremen alike, showed that 78 percent of a foreman's time and skill has to do with handling his personnel, and that only about 22 percent of his time and skill is spent on the technical aspects of his job.

A supervisor needs technical skill, *plus* knowledge of his authorities, skill in instructing, skill in planning, and skill in handling people.

The first step, therefore, was to organize this group into a planning group with definite and regular meetings, in which they would be concerned first, with the learning more about the problem of directing people and coordinating the activities of their department with other departments; and second, with the technical skills and knowledge necessary in their own particular fields.

The following outline is a concise summary of the plan for the operation of this phase of the training program:

Supervisory Training

1. MANAGEMENT SKILLS

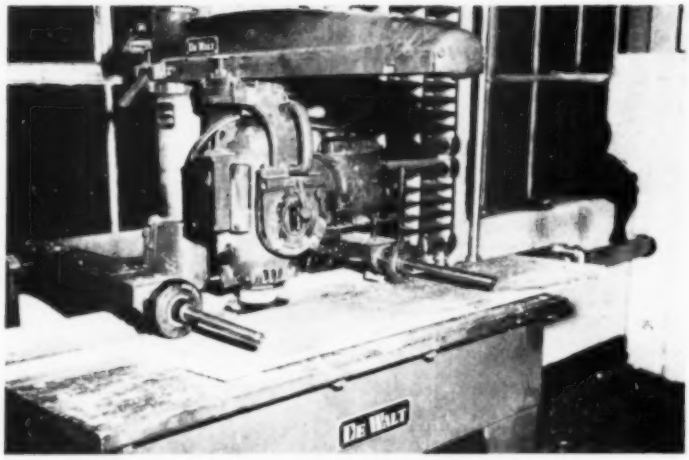
A. *Operation of the Course*

1. *Groups*
   (a) All foremen in each plant meeting together. (b) Foremen of all plants meeting together on such special occasions as "Foremen's Day."
2. *Meeting Times*
   (a) Once each month except during summer months. (b) Dinner meeting at time most suitable for each plant. (c) Meetings to be held at most appropriate place.
3. *Method of conduct*
   (a) Chairman–Plant manager or plant personnel manager. (b) Discussion, lecture, or both.
4. *Mechanics*
   (a) Invitations to each meeting accompanied by outline of topics for discussion. (b) Use of charts, graphs, models, etc. where possible. (c) Detailed write-up to members at conclusion of sessions.

B. *Suggested Topics*

1. *Personnel Practice and Policies*
   (a) Discussion of present labor conditions, labor turn-over reports, absenteeism, etc. (b) A study of company personnel policies and consideration of possible improvements. (c) Discussion of employee benefit plans, such as group insurance, hospital insurance, social security, Workmen's Compensation, Unemployment Compensation.
2. *The Job of Being a Supervisor*
   (a) The obligation and privileges of being a supervisor discussed as follows:
   (1) What the supervisor expects. (2) What management expects. (3) What workers expect. (4) The privileges of supervision.
3. *Training–A Supervisor's Responsibility*
   (a) A discussion of the importance of proper instruction of workers in "how" to do their jobs.
   A four-step plan aimed at aiding the supervisor in getting the worker to do his job correctly, quickly, and conscientiously by: (1) Recognizing training needs. (2) Planning and organizing job training. (3) Supervising job training. (4) Job instruction procedures.
   "If the worker hasn't learned, the instructor hasn't taught."
4. *Planning Work and Budgeting Time*
   (a) A session which deals with the importance of "planning or thinking ahead."
   (1) Steps in improving a job.
   a. Analyzing present methods.
   b. Visualizing new and improved ways of doing a job.
   c. Accepting suggestions for better methods.
5. *Effective Discipline*
   (a) A consideration of the supervisor's responsibility for maintaining effective discipline, with emphasis given to preventive rather than punitive discipline.
6. *Cost Control and Waste Elimination*
   (a) Need for cost control. (b) Methods of cost control. (c) The supervisor's part in cost control.
7. *Our Industrial System*
   (a) The development of the industrial system in America. (b) The organization and financing of a corporation–the

(Continued on page 60)



RADIAL saw fitted with equipment to make shaped edges.

Proper Machine Feeding

The factors to consider in feeding woodworking machines are outlined here for your use and convenience.

by JOHN E. HYLER

There is much to be said relative to proper theory in feeding different types of woodworking machines, for there is a great difference between them. The scroll bandsaw is a law to itself with regard to proper feeding. If a man is sawing to a curved line he should consider the point on the work where the tooth points of the blade are engaging it as a pivot center. On this pivot center he should swing the back end of the work to right or left, as the case may require, in sawing a curved outline. By doing this, he will soon develop a sense of proper feeding.

There is a definite relationship at the scroll bandsaw, however, between the thickness of stock being cut and the speed at which the material can be fed. For a long time, the speed at which stock could logically be fed was based on the capacity of the gullets to contain the sawdust produced. When a given bandsaw tooth entered the cut at the top of the work, the gullet just ahead of it had to receive and accommodate all the sawdust cut by that tooth until it emerged at the bottom of the material. This has been changed in a good many places through use of skip-tooth bandsaw blades, as they are called. If a blade has only half as many teeth, it will have far greater sawdust-carrying capacity without undue packing and friction of the sawdust during the sawing operation.

Thrust to Be Considered

The greater sawdust-carrying capacity of skip-tooth bandsaw blades notwithstanding, there is still a logical limit at which one can process the thicker stock. The reason is that at any given maintained feeding speed, the amount of thrust against the blade necessary to maintain it will increase as the speed of the feed increases.

Feeding stock on the edge for resawing at a band scroll saw has always been attended with definite difficulties, under ordinary conditions. There have been scroll bandsaws provided with a pair of rolls, carried on an overarm hinged to the left side of the gooseneck bandsaw frame. The overarm is provided with a leg terminating in a caster which rolls in an arc on the floor, to help support the weight. This is termed a combination scroll and resaw, and is very convenient in many places. Where there is only a small amount of resawing to be done from time to time, it permits doing it on the band scroll saw. It allows the material to be fed between vertical-axis rolls, in the manner that standard vertical resaws are fed.

Circular Saw Feeding

In feeding circular saws, somewhat the same rules apply in regard to thinner and thicker stock. Saw gullets must provide adequate room for all sawdust produced, which means that thicker stock must be fed more slowly than thinner. It is true that hardwoods must generally be fed more slowly than softwoods, since saw teeth do not have as much penetrating power in hardwoods as they do in softer woods, other factors remaining the same. In fact, hardwoods must practically always be fed more slowly than softwoods to any woodworking machine.

When power feed is being used on sawing and other machines, one must select a mechanical feed speed in harmony with what the cutters can be expected to do under existing circumstances. If material is being fed by hand, as at a handfeed ripsaw, the variety saw, or the handfeed shaper, good judgment is required. There are always some cases, at the shaper or other knife-type machines, where smooth work can be done and tearing avoided by slowing the feed, where tearing or rough work would otherwise occur.

Special Power-Feed Auxiliaries

Feeding by hand is very tiring as against automatic feed. Due to this fact, certain devices have been designed which transform machines ordinarily hand-fed into power-fed units. There is an infeed attachment now being considerably used in connection with handfeed table saws and shapers. It is supported at the top of a heavy-based pedestal. This pedestal is set in back of the shaper, or at the righthand side of a handfeed saw table.

The pedestal standard has a telescopic adjustment for height. At its top is a horizontal-axis sleeve. Through this outer sleeve is positioned an inner arm-type sleeve of considerable length. The inner sleeve has a rack along its bottom. A crank-fitted pinion is incorporated to engage this rack. Using the crank, one can slide the inner sleeve through the outer, to right or to left. Thus the actual feeding device is made adjustable both height-wise and laterally, as need appears.

Through the inner sleeve mentioned, is placed a shaft. At the left-hand end of this shaft are mounted two feed wheels or rolls of 19⅝" diameter. These two feed wheels operate as one, but are adjustable as touching distance between them. This adjustability makes them more perfectly adaptable for feeding either wide or narrow material. On the periphery on each feed wheel is

(Continued on page 56)

PHILIPPINE MAHOGANY

FOR BEAUTIFUL FURNITURE

WORKS WELL

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FINISHES WELL

No other hardwood offers the wide average widths and long average lengths so desirable for economical cutting. In addition, Philippine Mahogany is remarkably free from crooks and knots . . . will not shrink or check. Available in either light or dark red, Philippine Mahogany readily lends itself to a wide variety of finishes for both modern and traditional furniture.

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FROST HARDWOODS

High Cutting Value Expedites Output!

It's at the machine that the superiority of Frost Hardwoods really pays off. Here, the woodworker loses no time sorting for defects. Thanks to Frost's accurate manufacture and uniform grading, each piece or unit supplies him with the highest cutting value, so that his work proceeds with precision. Result — maximum production per machine per hour. This, in brief, is the experience of Frost's long list of hardwood customers . . . a list you're invited to join when you're next in the market.

Sky view of our mill at Trout, La., which produces hardwoods.

UNIFORM GRADES QUALITY MANUFACTURE

FROST LUMBER INDUSTRIES, Inc.

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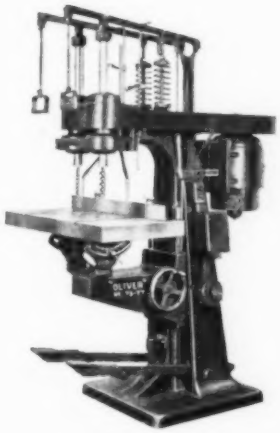
"Oliver" Woodworking Machinery

Quality Equipment for Furniture Making, Cabinet and Pattern Shops and Woodworking Plants of all Kinds

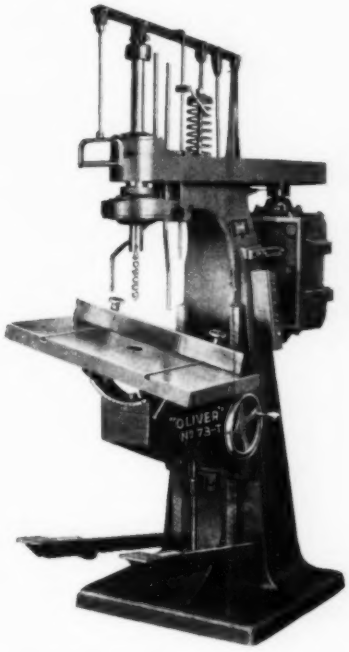


"OLIVER"

No. 73T Double or Single Spindle

VERTICAL BORER

Bores holes up to 3" diameter
to a depth of 12"
to the center of 36"



This new "Oliver" Borer embodies rugged, precision construction for accurate, heavy boring. It is well proportioned, easy operating. One-piece column has wide ways for knee. Machined table is 18" x 30" with 17" vertical adjustment, Table tilts 40° to and from column, 15° to right and left. Graduated rockers indicate pitch. Spindle has extra large ball bearings. Has smooth, quiet V-belt drive. Various speeds available. Also offered with two independent spindles for work requiring two sizes of holes.

Ask for Bulletin No. 73T

This is just one of
a large line of
"Oliver" Boring Machines.
Descriptions of any
borers gladly sent—
May we?

OLIVER MACHINERY CO.

Grand Rapids 2, Michigan, U. S. A.

PATENT DIGEST

by Royden C. Rinker

Foundry Binder

W. E. Koonce (to Masonite Corp.). U.S. 2,549,822, April 24. Molded products comprising finely divided organic material and a binder comprising the heat-reaction product of a mixture of pentosans and hexosans, lignin, non-sugar carbohydrates, and gums.

Sheet Stock

C. F. Story (to Masonite Corp.). U.S. 2,550,730, May 1. Forming hydrolyzed ligno-cellulose into sheets, applying a seal to the edges, arranging in a stack, heating under pressure, and cooling under pressure.

Varnish

J. J. Bradley, Jr. (to Boston Varnish Co.). U.S. 2,550,961, May 1. Dispersion in hydrocarbon of an oil-soluble resin and an unsaturated glyceride oil.

Wood Bending

K. Michaelis. U.S. 2,551,383, May 1. Fixed means arranged on an arc constituting a former, a heat conductive element tangential thereto, and means for exerting a force at either end of the arc whereby a wood blank may be bent to desired curvature.

Polymerized Rosin

B. L. Hampton (to Crosby Chemicals). U.S. 2,551,436, May 1. Treating rosin with a halostannic acid and heat.

Algaecide

H. C. Marks (to Wallace and Tiernan Products, Inc.). U.S. 2,551,446, May 1. Algaecidal composition of a water-soluble cupric salt and lignin sulfonate.

Last

C. A. Davidson and H. Werkland. U.S. 2,551,729, May 8. Wooden last composed of pieces of wood having fibers extending longitudinally, the sole being hornbeam and the other layers being of softer wood with their grains at 45 degree angles to each other.

Composite

J. R. Fitzpatrick and A. N. Carstens. U.S. 2,551,796, May 8. Laminating a layer of material harder than wood between face plies of wood and perforating.

Lumber Mill Carriage

W. R. Coote. U.S. 2,551,824, May 8. In a lumber mill carriage a number of knees mounted for sliding on headblocks and means for moving all knees in unison.

Planing

L. B. Carlson (to S. A. Woods Machine Co.). U.S. 2,552,367, May 8. Wood planing machine including a work feeding mechanism for advancing work to planing knives.

Molding

W. R. Smith, E. R. Mellenger, and D. F. Othmer (to D. F. Othmer, W. R. White, Jr., and L. Ricciardi). U.S. 2,552,597, May 15. Molding composition of lignocellulose and sulfur.

Log Barking

E. C. Shaw (to Allis-Chalmers). U.S. 2,552,871, May 15. Log barking apparatus having converging oscillatable water jets and means to vary proportionally the center of convergence and amplitude of oscillation.

Wood Coating

P. E. McCoy (to Stancal Asphalt and Bitumuls). U.S. 2,552,900, May 15. Coating wood with an uncured thermosetting material and applying thereover a bituminous emulsion.

Sheathing

W. W. Wesner. U.S. 2,553,227, May 15. Joining an edge of a wooden nail-receiving strip to one of the longer edges of a strip of cellular wood substitute and then adhesively securing a flexible fibrous sheet to one side of said components.

Molding Composition

C. C. Heritage (to Wood Conversion Co.). U.S. 2,553,412, May 15. Hot-moldable composition of feltable steam-treated wood fibers and a thermosetting resin.

Kiln

C. R. Guthrie. U.S. 2,553,452, May 15. A lumber drying kiln.

Power Tool

E. H. Lillquist. U.S. 2,553,924, May 22. A combination power saw and sander.

Structural Material

M. Croce (to Certain-Teed Products Corp.). U.S. 2,554,089, May 22. Felted fibrous material impregnated with a composition of tar asphalt and a resin from southern long-leaf pine.

Coating

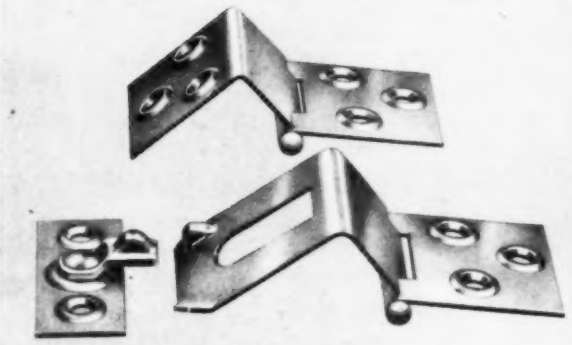
D. G. Patterson and W. F. Turner (to American Cyanamid Co.). U.S. 2,554,471, May 22. Coating a transparent press plate

AMMUNITION BOX HARDWARE

NEW NO. 76-0-46 REV. 5
MARCH 19, 1951

NATIONAL LOCK, a large and dependable World War II supplier, is geared up to serve you on ammunition box hardware (as illustrated), wood screws, as well as many other items that fit into your defense production plans. • Both peace and wartime experience, coupled with NATIONAL LOCK'S extensive plant facilities, places us in a position to be of valuable assistance to you. • Send complete information and prints whenever possible.

ASK ABOUT OUR EXTENSIVE LINE OF HANDLES . . . HINGES . . . HASPS . . . SCREWS . . . BOLTS



NATIONAL LOCK COMPANY
ROCKFORD • ILLINOIS

and a wood veneer with polyester resin, applying synthetic fibers and bonding with heat and pressure.

Rosin

D. S. Breslow (to Hercules Powder Co.). U.S. 2,554,487, May 29. Heating a rosinyl material with a material such as a peroxide or an organometallic compound to polymerize.

Sawing

A. J. Johnson and F. D. McCormack, U.S. 2,554,989, May 29. A sawing device for dividing tree-length logs into predetermined lengths.

Saw

F. E. Pence. U.S. 2,555,056, May 29. Wood saw for cutting scrolled ends on long stationary timbers.

Tall Oil

E. A. Van Valkenburgh. U.S. 2,555,257, May 29. Heat-treated tall oil over neutralized with an aliphatic polyamine.

Panel Searfing

C. Uschmann and E. H. Jacobson (to Cascades Plywood Corp.). U. S. 2,555,382, June 5. Surfacing tool comprising a discoidal head arranged to press against a finished surface of a work piece.

Pruning Saw

G. A. Tuttle. U. S. 2,555,428, June 5. A tree pruning power driven saw comprising a handle, a housing, and rotary blades.

Lumber Handling

C. D. Farr. U. S. 2,555,792, June 5. A vehicle for stacking lumber.

Resin

A. L. Rummelsburg (to Hercules Powder Co.). U. S. 2,555,-901, June 5. Reaction products of pine-wood resin and ethylene oxide.

Wood Classification

C. E. Jenkins. U. S. 2,556,090, June 5. A wood gas producer comprising a fuel holder, a disc member with openings therein placed at the bottom of the fuel holder for removal of gases produced.

Flooring

R. H. Cubberly and C. E. Dill (to Patent and Licensing Corp.). U. S. 2,556,575, June 12. Flooring and coating containing polychloroprene, mineral filler, aluminous cement, and pinewood extract.

Lathe Device

A. W. McNickle. U. S. 2,556,-595, June 12. Centering device for a wood lathe.

Drying

A. Elmendorf. U. S. 2,556,686, June 12. Drying thin boards of hardwood without constraint until free moisture is removed and then drying under constraint to prevent warpage.

Sound Absorber

T. Muller (to Muller-Barringer). U. S. 2,556,884, June 12. A thin backing layer of wood, an intermediate layer of wood at least three times thicker than the first, and a surface layer; said top and intermediate layers being grooved whereby the laminate is made flexible and a thin textile bonded to the backing layer.

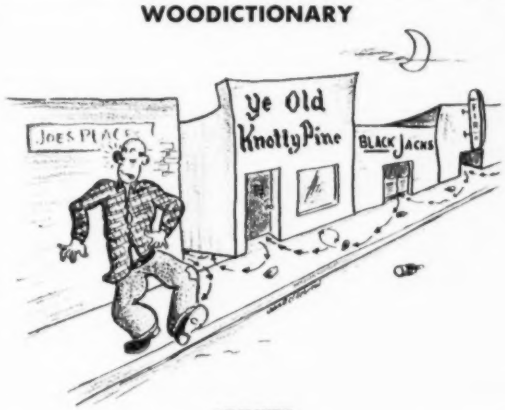
Wood Treating

J. H. Pickren (to American Celcure Wood Preserving Corp.). U. S. 2,557,062, June 19. Wood treatment comprising reaction products of a heavy metal salt, chromic anhydride, phenol sulfonic acid and water.

Derrick

S. S. McIntyre. U. S. 2,558,-306, June 26. A log-handling truck-mounted derrick.

WOODICTIONARY



JOINTER

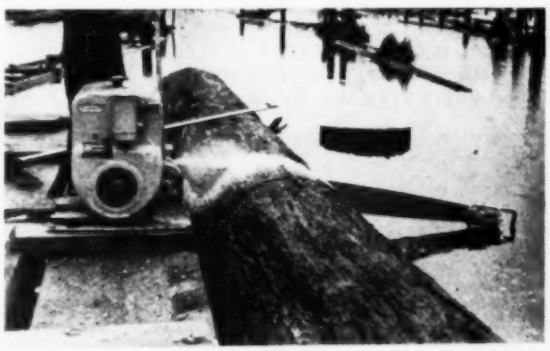
One who or that which joints; also, any of various tools used in making joints.

Faster Cut-Off SAVES Man Hours!

Either dry or wet cutting

L-M Model 100 electric power Pond and Deck Saw.

L-M 7-Foot Gas Powered Pond Saw in operation at Astoria, Oregon, boom of Crown Zellerbach.



With the new **Wide Kerf Chain** large or small logs are cut speedily and economically.

L-M Pond and Deck Saws are cutting 40-inch logs to length in less than 60 seconds per cut. Gas or electric power available. Bar length available (in stock) 3 to 10 feet.

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L. M. EQUIPMENT CO.

401 S. E. CLAY STREET PORTLAND 14, OREGON CABLE ADDRESS: LMEQ PORTLANDORE

Foreign Woods . . .

by GEORGE LAMB

Muhuhu—
Brachylaena hutchinsii
Compositae (Composite) Family

This is the largest of the plant families with over 800 genera and 12,000 species, mostly of herbs and shrubs. The dandelion, aster, daisy and sunflower are some of the best known members. The few trees of the family, found in the tropics, are small and of little or no value.

An exception is Brachylaena, which occurs in Madagascar and on the east coast of Africa. MUHUHU is a wood from Kenya Colony and Uganda from trees of only medium size.

The wood is pale yellow to pale brown, scented, very hard, heavy, easy to work and split and extremely resistant to insects and fungi. It has a clearly defined ring growth structure with a fine and even texture. Sp. gr. 0.85.

In England the results of flooring show it to be of very high order, ranking with hard maple and Rhodesian teak.

The species that grow in Madagascar are large trees which supply a kind of sandalwood, an excellent material for cabinet work and heavy construction.

Pink Ivory—*Rhamnus zeyheri*
Rhamnaceae (Buckthorn) Family

The Buckthorn family is very generally distributed over the earth but is of little commercial importance. A species of Rhamnus produces cascara, another a yellow dye and the spiny branches of Zizyphus Spina-Christi are thought to have been those from which the crown of thorns was made. Another tree of this family is Black Ironwood, probably the heaviest wood in the world.

PINK IVORY occurs in Rhodesia, Portuguese East Africa and in parts of the Transvaal. It seldom reaches a height of over 50 feet or a diameter over 12 inches. The wood, as one might assume from the name PINK IVORY, is very hard and fine textured. The sapwood is almost white while the heartwood when freshly cut may be pink or coral red. After long exposure it tends to become deep orange colored or orange brown. It works to a smooth fine finish. It is used for small fancy articles and is a favorite specimen of the wood collector.

Other names or other woods called PINK IVORY:

None

Saqui-Saqui—*Bombacopsis sp.*
Bombaceae (Bombax) Family

The Bombax family is pan-tropical and consists of some 25 genera and 150 species. The trees are very large and often with bulging trunks covered with heavy prickles. The most important tree is Balsa (Ochroma sp.) which is considered the lightest commercial wood in the world.

Bombacopsis, with three or four species, is found in Colombia, Venezuela and north to Honduras.

The heartwood is light to dark

(Continued on page 63)

Is Your Wood Gluing Department a Production Bottleneck?

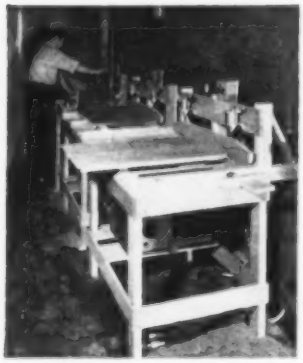
Now . . . discover

Thermatron

HIGH FREQUENCY GENERATORS AND EQUIPMENT

BOND WOOD PERMANENTLY IN A MATTER OF SECONDS!

THE OLD WAY at Royal Wood Products Co. Until the wood gluing department was streamlined by installation of THERMATRON equipment it retarded allover production. Two men worked on one assembly, which involved timetaking manual adjustment of clamps, including protective measures to eliminate clamp damage on expensive veneers.



THE NEW WAY! A battery of jigs each equipped with a 100 watt THERMATRON generator, at plant of Royal Wood Products Co. Machines bond wood assemblies in first step in manufacture of TV cabinets. Panels are firmly glued in 20 seconds and ready for next step immediately.

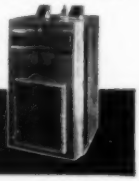
THERMATRON, product of a pioneer in the electronics industry, may revolutionize your wood gluing department just as it has recently done for Royal Wood Products Co., Brooklyn manufacturer of fine television cabinets.

THERMATRON High Frequency equipment sharply reduces unit production time, floor area and manpower needed . . . eliminates expensive clamps and most rejects. And, THERMATRON frequently permits construction that reduces the number of reinforcing blocks which only add dead weight and bulk!

Installations of THERMATRON generators and equipment are available under one contract and one responsibility, because *Radio Receptor Co. designs and builds the required jigs and fixtures right in its own shop.* In many cases the initial cost of THERMATRON equipment isn't much more than the investment in hand clamps it replaces.

For "non-headache" wood gluing outline your problems to us today. Our engineers will gladly make recommendations without obligation . . . And be sure to request our latest bulletin No. W-7.

Standard stock generators available from ½ KW to 6 KW output, operating on 110 or 220 Volt lines. Special units supplied for unusual applications.



*T. M. Reg. U. S. Pat. Off.

Thermatron equipment

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Sales Dept.—251 W. 19th St., New York 11, N. Y. • Factory: 84 N. 9th St., Brooklyn 11, N. Y.

Get Every Job Done

FASTER! EASIER! AT LOWER COST!

on GENERALS!

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MORE TRACTION-MORE SPEED.
TOUGH TREAD-LASTS LONGER.
MORE PROFIT ON L.C.M.

✓ when job calls for most work on the road-some work off-use GENERAL H.C.T.

saw-tooth tread ribs-
STOP FASTER-STEER EASIER
GIVE MORE, SAFE MILEAGE
MORE PROFIT on H.C.T.

GENERAL L. C. M. Broad, deep tread and shoulder cleats develop extra traction forward or backward. More cords for greater carcass strength. Moves more, heavy loads easier, faster, at lower cost.

GENERAL H. C. T. More rubber, more cords in this heavy duty truck tire with a special shock-absorber design. More traction off-the-road, more safety on-the-road. More original and more recap miles.

SPECIFY GENERAL TIRES ON YOUR NEW EQUIPMENT

for more savings from bulk shipments...

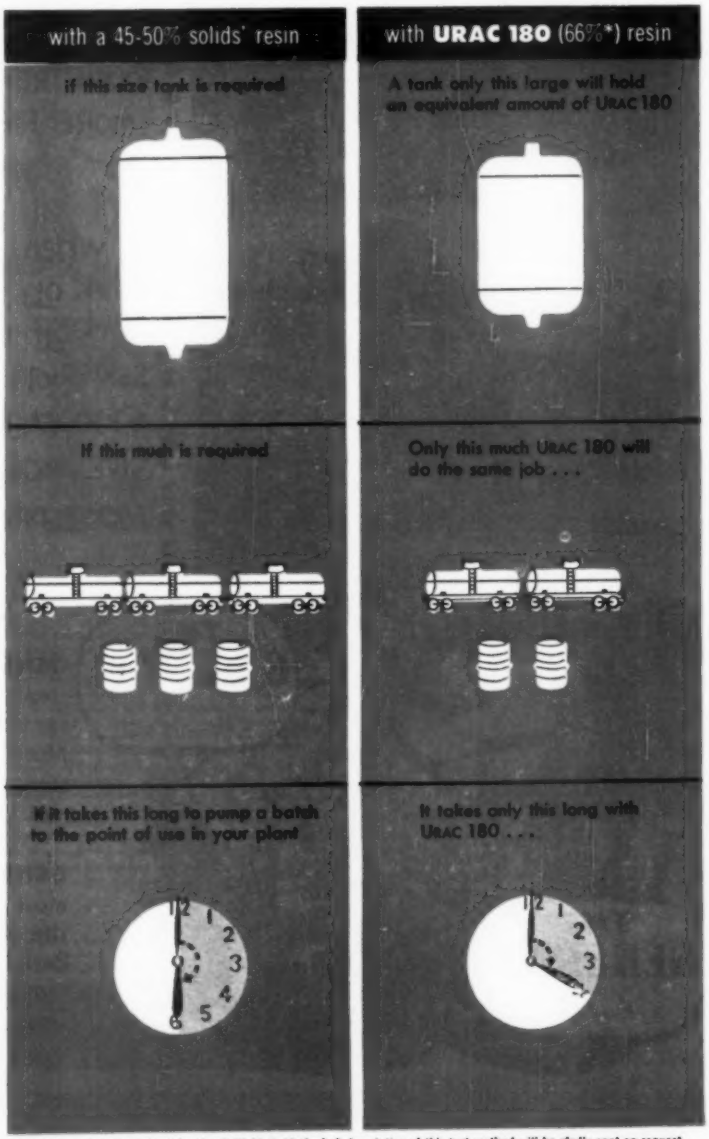
Your best buy is

Lower first cost is only one of the savings you get from bulk buying of URAC 180 Resin Adhesives. Because URAC 180 is *the* HIGH-SOLIDS urea resin solution, you save in shipping, storing and handling, too. Here's why:

you don't waste space storing *water!*

you don't waste money shipping *water!*

you don't waste time handling *water!*


with a 45-50% solids' resin
if this size tank is required
If this much is required
If it takes this long to pump a batch to the point of use in your plant
with URAC 180 (66%*) resin
A tank only this large will hold an equivalent amount of URAC 180
Only this much URAC 180 will do the same job . . .
It takes only this long with URAC 180 . . .

*Solids content determined by the P. M. M. A. Method. A description of this test method will be gladly sent on request.

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VERSATILITY

And you get these extra advantages built right into URAC 180

By simply changing the hardener you use with it, URAC 180 can be used for all these jobs:

Hot-pressing plywoods
High-frequency wood bonding
Lumber core gluing
Cold-pressing plywoods

STABILITY

URAC 180 is a high-solids urea resin solution which is just as stable . . . often more stable . . . than many a low-solids type.

QUALITY BOND

Perhaps the surest road to long-range profits and repeat business. Certainly the smoothest! Yet for those jobs where water resistance is of secondary importance, high flour extensions of URAC 180 are also possible.

If you'd like to investigate further the advantages of buying and using URAC 180 in bulk, our Technical Service Department will be glad to help. We have a booklet that tells more about this versatile resin, too. Just ask for it!

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30 Years *in the* Tall Timber

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APMI plywood is available in major building and distribution areas. Your inquiries are welcomed at our general offices, or at APMI sales warehouses.

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GENERAL OFFICES
EUGENE, OREGON

FOREST PRODUCTS RESEARCH SOCIETY

F.P.R.S. Monthly Bulletin

Research • *Development* • *Production* • *Utilization* • *Distribution*

by FRANK J. ROVSEK, Executive Secretary, P. O. BOX 2010, UNIV. STA., MADISON 5, WISC., OCTOBER, 1951

5 Section Meetings Scheduled for Late Oct.-Nov.

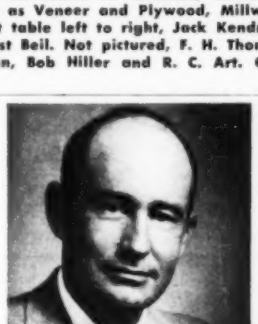
Credit Due For The Oshkosh Meeting

Outstanding Forest Products Research Society Section Meetings don't just "happen." Behind them is plenty of hard work, contribution of personal service above and beyond every-day company duty. Result: Well-attended, expertly staffed meetings such as this Midwest group recently conducted at Oshkosh, Wisconsin covering production angles in research as well as Veneer and Plywood, Millwork and Furniture. Background, Harold D. Crosby; at table left to right, Jack Kendrick, Ed Steck, Carl J. Binner, Section Chairman, Forest Beil. Not pictured, F. H. Thomas, Gus Barshefsky, Joe Allegretti, Ralph Casselman, Bob Hiller and R. C. Art. Congratulations on a job well done, fellows!

176-Page "Journal" of the Forest Products Research Society Now Available

Containing 44 semi-technical papers, some with discussion, presented at 11 FPRS Section meetings from coast to coast within the past year, Volume 1 of the new "Journal" of the Forest Products Research Society is now on sale to non-members at $2.50 per copy.

Complete with index, it covers a wide range of wood subjects including machinery selection and machining techniques, utilization of wastes, economy of second-growth timber production, quality control in lumber and furniture manufacturing; new sawing techniques and equipment, and many others. Copies available through the office of the Executive Secretary, Box 2010, University Station, Madison 5, Wisconsin.



New Fla-Ga-Ala Secretary

Carl L. Brice, President of the Brice Lumber Co. and Brice Wood Preserving Corp., Archer, Florida has been appointed Secretary-Treasurer of the Florida-Georgia-Alabama Section, to fill the unexpired term of Henry Dorr, who has taken a new position with Connor Lumber & Land Co., Wisconsin. Mr. Brice is past Master of the Archer Masonic Lodge, a member of Elk and Rotary clubs. His paper, *Some Pressing Problems of the Lumber Industry—What Can Research Do About Them?*, was read at Valdosta meeting.

Boston, Massachusetts, November 1 & 2

Heading the forthcoming meetings, the energetic Northeast Section will hold its seventh meeting at the Massachusetts Institute of Technology, November 1 and 2. The theme, "*Know-How Means Dollars—How and Where to Find Out the Best Way Via Research.*"

Registration opens Thursday at 9:00 A.M. and the morning program gets underway at 9:30 under the direction of F. T. Parrish, Chairman, Jim Tynan, Moderator, and Frank Beyer and Bob Zabel, Recorders. Papers include: *Research Products of Interest to Management* by A. G. H. Dietz, Professor of Bldg. Engrg. and Construction M.I.T.; *Interesting Cases Where Forest Products Research Has Paid Off*, by A. Elmendorf, Pres., Elmendorf Research, Inc.; *Looking Ahead with Research at Madison, In Peace or In War*, by L. J. Markwardt, Ass't Director of U. S. Forest Products Laboratory, Madison; *Putting the Results of Know-How in Forest Products to Work in Vermont*, by Jack Wooley, Dir. of Bureau of Industrial Research, Northfield, Vermont.

During intermission there will be a preview of Research Table-Top Exhibits and Displays provided by the U. S. Forest Products Laboratory, Madison; Standard Dry Kiln Co.; Foxboro Co.; E. I. DuPont Co.; United Carr Fastener Corp.; Delmhorst Instrument Co.; Parkwood Co.; Elmendorf Research Corp.; Keller Products Co.; Behr Manning Co.; Simond Saw Corp.; Monsanto Chemical Corp.; Peter Cooper Corp.; Lustrewood Process Co.; and Electronic Heating Corp.

The afternoon session, "*New Lumbering Ideas*" will be conducted by Rudolph Willard, with C. Lockard and Harry Rich as recorders. Papers include: *Obtaining High-Grade Furniture Lumber from Pulp Wood Cutting Operations* by Prof. Arnold Hosmer,

(Continued on page 48)

F.P.R.S. Sections

(Continued from page 47)

Harvard Grad. School of Bus. Adm.; *Kiln Drying Green Cut to Length Stock Direct from the Bolting Saw*, by Record Pullen, Mossehead Mfg. Co.

At 3:30 P.M. three local tours with emphasis on research will be conducted. They include visits to the A. D. Little Laboratories conducted by F. Perry; to the Behr Manning Methods Room & National Casket Co., by J. Swennsen; and M.I.T. Laboratories by Al Dietz.

Friday A.M. will open with a brief review of research exhibits at Rockwell Cage, M.I.T., followed by a session on "Latest News on Restriction Problems and How They May Be Coped With." Chairman, W. B. Wilkins; Recorders, Earl Stovers, Eric Andersen. Papers: *Lumbering Equipment Problems*, by Fred Simmons, Northeast Forest Experiment Station; *Woodworkers Machine Equipment Problems*, by C. L. Babcock, Pres. of Babcock Machinery, Inc.; *Material Problems, Joining Hardware, etc.*, by David Baxter, United Carr Fastener; *Material Problems, Plastic Resins, Adhesives, etc.*, by Monsanto Chemical Co.; *Kiln Drying Problems, Green Lumber, etc.*, by Irwin Elkins, N.E.-K.D.A., Keene, New Hampshire.

Friday P.M. will open with a "*Report from Washington*"; Chairman, Frank Parrish, Recorders, G. Baker and E. Elkins. The subject will be *Wood Products in the Defense Effort and How Contracts and Sub-contracts May Be Obtained*, by Harold Holman, Ass't Dir. Lumber & Wood Prod. Div., National Production Authority. This will be followed by a film "*Wood Dollars for New Hampshire*" with introduction by Harold Shepard; and concluded with six separate group discussions under the chairmanship of Fred Dickinson. *Logging and Saw Mills*, F. Simmons; *Wood Waste Utilization*, R. Willard; *Machining, Sanding, Finishing*, Carleton Nichols. *Quality Control Standards; Research and Product Designing*, F. T. Parrish; and a special meeting of the New England Kiln Drying Association conducted by E. Elkins and H. Rich.

Further information on this vital program can be had through the Section Secretary, W. J. Delmhorst, Delmhorst Instrument Co., 115 Cornelia St., Boonton, New Jersey.

ECA-AFA TEAM NO. 7 VISITS FOREST PRODUCTS LABORATORY

Photo by R. B. Russell, USFS.

One of the last of European wood executive groups to visit the U. S. under the current auspices of ECA and the American Forestry Association is shown here with their Project Manager, Prof. Roy M. Carter, president of the Forest Products Research Society. Left to right—Carter; Francis M. A. Lacarriere, France; Johann Baptist Weiss, Austria; Herbert Kuhlmann, Austria; Hendrik Huples, Netherlands; and Alan D. Freas, Engineer, U. S. Forest Products Laboratory.

The Forest Products Laboratory is a unit of the Forest Service, United States Department of Agriculture. This Laboratory, established in Madison, Wisconsin, in 1910, is the world's largest laboratory wholly devoted to research on all major aspects of forest products and their adaptation to diversified fields of use. Attention is chiefly devoted to pulp and paper, veneer and plywood, laminated wood and adhesives, wood preservation, derived products, containers and packaging, timber physics, properties of wood and industrial investigations. The Laboratory serves the fifth largest, and probably most diversified, group of manufacturing industries in the United States.

Clemson, S. C., Oct. 26

Core and Panel Manufacture, Current Practices and New Developments, will be the theme of the Annual Meeting of the Virginia-Carolinas Section when it meets on October 26 at the Clemson House, Clemson, S.C. Hotel reservations may be made by letter to Mr. Zink at the Clemson House. Further details on the meeting, program, etc. can be had through the Section Secretary, E. S. Harrar, School of Forestry, Box, FM, Duke University Station, Durham, N.C.

Grand Rapids, Mich., Oct. 30

The fall activity of the Great Lakes Section will be a *Kiln-Drying Clinic* to be conducted at Grand Rapids on Oct. 30. For further information, write the Section Secretary, Wayne F. Hutchins, Baker Furniture Co., Holland, Michigan.

Minneapolis, Minnesota, Nov. 23

The reorganized Upper Mississippi Valley Section will hold a combination business meeting for the purpose of presenting a Section Bylaws and electing officers, and an interesting technical meeting on Friday, Nov. 23, at Minneapolis. This coincides with the Minneapolis-Wisconsin football game to be played at St. Paul on the 24th. Program of the meeting may be had by writing, Arne K. Kemp, School of Forestry, University of Minnesota, St. Paul, Minn.

Shreveport In November

The A. J. Hodges Industries at Shreveport, Louisiana, is scheduled to play host to the Deep South Section at its Annual Meeting late in November. The Section Secretary is R. K. Spears, 265 Robinson, Shreveport, Louisiana.

FPRS Forum

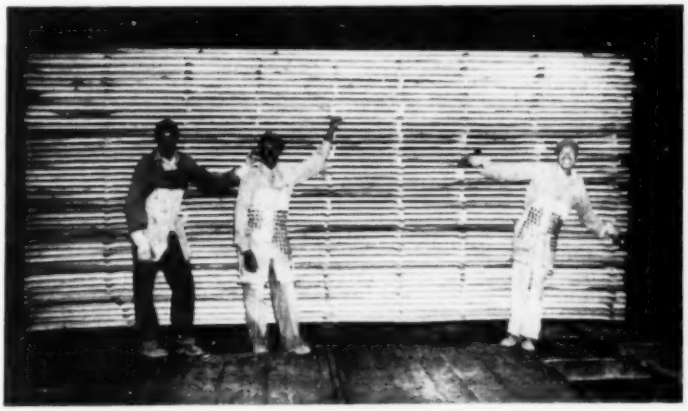
The FORUM is intended to serve as a medium for open discussion by all F.P.R.S. members, bringing practical answers to specific problems. Questions or contributions should be direct to the Executive Secretary, c/o Wood/Wood Products.

The Problem: Do Cross-Piled, Cross Circulation Lumber Dry Kilns Produce Uniformly Dried Lumber?

The Answer:

by RAYMOND C. RIETZ, Chief

Division of Timber Physics
U. S. Forest Products Laboratory



Kiln truck in cross-piled, cross-circulation kiln. Fans and heating coils are below truck level. Fan baffle on ceiling prevents loss of air over top of load.

For many years the conversion of cross-piled, natural-circulation lumber dry kilns to forced-air-circulation kilns of one type or another, has posed serious problems to kiln engineers. The success of the forced-air-circulation, end-piled kiln suggests that the conversion of the cross-piled kiln should involve rearranging tracks and piling equipment in accordance with end-piled kiln design, but in many instances such a modification is virtually impossible.

Many early attempts to convert natural-circulation, cross-piled kilns to forced-air-circulation kilns by blowing the air lengthwise of the kiln and parallel to the stickers in an effort to avoid changing the piling and loading method did not prove highly successful. The excessively long air travel permitted short circuiting of the air between loads, ceiling, and walls, and resulted in inefficient, nonuniform drying. As plant layout and trackage systems often did not make conversion to end-piled kilns practical, the modification into forced-air-circulation kilns was not attempted.

Within the last 15 years, many of these older units have been converted to forced-air-circulation kilns by using fans or blowers to force air through the load parallel to the lumber and against the stickers. The heating systems had to be changed, but surprisingly enough the cross-piled, cross-circulation kiln has given excellent performance. Those which are successful are probably provided with motors of a higher horsepower than would be required in an end-piled kiln of similar capacity. More power is needed to force the air through the small spaces between the boards than would be required if the air moved parallel to the stickers.

The cross-piled, cross-circulation kiln requires that the lumber be piled with spaces between the boards of everylayer. As the air is blown parallel to the board, the stickers block the flow of air unless such openings between the boards are provided. No doubt some air moves diagonally across the boards between the stickers, but the main air movement is considered to be parallel to the boards. Thus, it is very important that the boards be carefully spaced during piling. In general, it is recommended that a 2-inch space be left between the boards on each layer to facilitate air movement.

In cross-circulation, end-piled lumber kilns, the desired uniformity of circulation between layers of boards is gained by providing plenty of space between the kiln loads and the kiln walls. In some of the more recent installations of internal-fan kilns, this space may be as much as 3 to 4 feet. This space is called the plenum, and its purpose is to convert as much as possible of the velocity pressure produced by the fans to static pressure. Thus the pressure differences between the two sides of the truckload will be about the same at all levels or layers.

The converted cross-piled kiln seldom has enough room between the ends of the truckloads and the walls to allow a man to squeeze past. It would seem, therefore, that adequate plenum space is not available to assure reasonably uniform circulation from the top to the bottom of the load. Even so, uniformly dry stock can be produced in a converted dry kiln of this kind.

It is believed that box piling of lumber for these cross-piled, cross-circulation kilns is very helpful and preferable to sorted-length piling, if warp is not a serious problem. The ends of the box-piled, mixed-length truckloads have considerable void space in them, which serves to increase the plenum volume. In the cross-circulation, end-piled kiln it is desirable to keep the resistance to air flow as uniform as possible. This is best accomplished by sorted-length piling. Box piling, rather than sorted-length piling, is recommended for cross-piled, cross-circulation kilns because of the increased plenum space provided.

A recent study of the uniformity of moisture content of lumber, kiln dried in a cross-piled, cross-circulation kiln, confirms the belief that this type of kiln can be successfully converted. The kiln in which the lumber was dried is 33 ft. long, and 19 ft. wide, and holds six trucks of lumber. Each truckload is 59 in. wide (the length of the stickers) and about 7½ ft. high. Nominal 1-in. stickers 59 in. long are used, and in piling the lumber 50 to 54 inches are laid down per layer. As the stickers overhang the lumber layers about 1-in. on each

Kiln truck No.	Truck location	Average moisture content Percent
1	At door	5.32
2	2nd from door	5.43
3	3rd from door	5.39
4	4th from door	5.63
5	5th from door	5.48
6	Against back wall	5.74
Average for kiln charge		5.50

end, the board opening varies from 3 to 7 in. per layer. One-inch yellow-poplar lumber was kiln dried from an air-dry moisture content of about 25 percent to 5.5 percent in 4 days' time. The average moisture content of each of the six trucks is given in the tabulation above.

These moisture content averages were obtained by random tests on cuttings back of the planer with an electrical moisture meter. A total of 50 tests were made while each truckload was being taken down. Thus, the average moisture content for each truck is represented by tests of pieces in various layers from top to bottom and in various locations within the layers—end to end and side to side. Obviously, there is no practical difference in average moisture content between the six kiln trucks making up the kiln charge. No truck location could be said to be superior to another insofar as air circulation was concerned. If the circulation had been inadequate at any one location, a significantly higher average moisture content would have been expected.

Uniformity of dryness between various height levels in the kiln trucks is also of interest, for if differences are found then spots of inadequate circulation would be indicated. The kiln in which the test charge was dried is a long-shaft kiln with opposed fans located below the tracks. The kiln is steam heated, the coils being below truck level. A sheet-metal baffle is let down from the ceiling to the top of the truckload to prevent short circuiting of the air over the load. The 1-inch lumber was box piled. Loads 16 feet long included both 14- and 8-foot stock, and 12-foot loads included 10-, 6-foot, and shorter lumber. The kiln charge consisted of both 16- and 12-foot loads. The average moisture content of the upper third, middle third, and lower third of the six kiln trucks was as shown in center tabulation.

It is apparent that the circulation was adequate through these various levels of the kiln trucks. During the kiln run, the circulation was automatically reversed every 6 hours, and any possibility that the board ends were dryer than the central portions isn't likely, because the moisture meter readings were taken randomly.

As these moisture meter values are at the lower limit of usefulness of the electrical resistance meter, there may be some doubt as to their accuracy. At the end of the kiln run a number of test boards were cut for moisture tests. These test boards were scattered throughout the kiln charge, and the moisture analysis was made by the oventesting method. Thirty-eight tests were made in this way to represent the kiln charge as compared with 300 electrical moisture meter tests. The average moisture content and uniformity factors of the kiln charge as obtained by the two test methods are as shown below.

Kiln truck No.	Upper third Percent	Middle third Percent	Lower third Percent
1	5.3	5.3	5.3
2	5.6	5.4	5.3
3	5.5	5.5	5.2
4	5.5	5.6	5.7
5	5.5	5.6	5.3
6	5.6	6.0	5.6

For practical purposes these average values are just about identical, and give greater assurance that the average values determined by meter readings are reasonably representative of the actual moisture conditions at the time the study was made.

	Average moisture content Percent	Uniformity factor
Oven-dry test method	5.54	0.45
Electrical meter test	5.50	.54

The excellent drying results in this cross-piled, cross-circulation kiln do not mean that similar results can always be expected in other conversions of the same type. The study does show, however, that good drying results can be obtained in such kilns. From the kiln engineering standpoint, conversions of this kind require extra power input for fan or blower operation. From the kiln operator's side, open piling and box piling are very important. The use of kiln samples in the operation of these kilns will test the ingenuity of the kiln operator, but by careful selection and placement of kiln samples, experience is gained that will enable skillful and good performance.

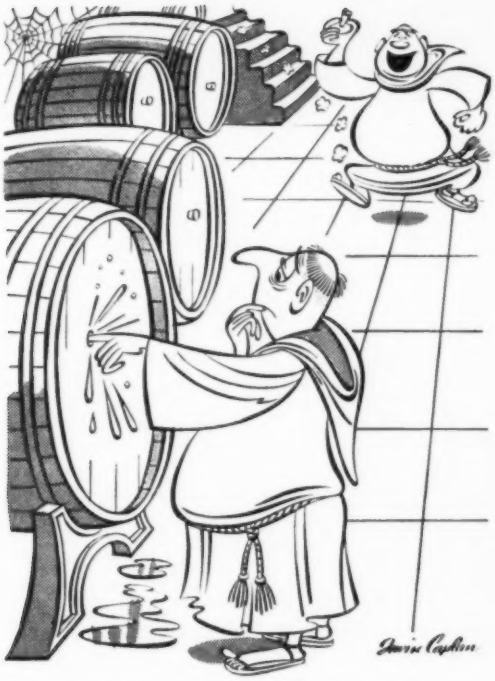
Research Publications

The following publications are reported as being currently available, without charge, from the U.S. Forest Products Laboratory, Madison 5, Wis.

No. D1766-5—*Veneer Cutting and Drying Properties, Pecan.* Covers selection, handling, preparation of logs for cutting, drying schedules and yields for four commercial species of pecan hickory.

No. R1781—*Quality Control in Manufacture of Lumber from Second Growth.* Many of today's difficulties center about 1) grading; 2) dryness; 3) warping behavior of lumber before and during use. Coping with the first two is relatively well-understood. How to cope with warping and twisting is less clear. Five general causes: crooked logs; growth rings of sharp curvature; spiral grain; growth stresses; and high longitudinal shrinkage. Outlined are six things that can be done to improve quality and behavior from young second growth, particularly southern yellow pine.

Reprint—*Hydrogenation of Douglas-fir Lignin.* Residue from sawmill waste was hydrogenated at 320°C in presence of copper chromite and Raney nickel catalysts; Decalin used as suspending medium. Product was complex mixture of 26 percent neutral oils; 4 percent low boil acids and phenols; 1 percent water soluble material; 7 percent low boil tars; 12 percent pitch; 29 percent unreacted residue; 5 percent water; and 16 percent gas and unaccounted-for by-products.



That little wood bung is sure going to help this fellow! And, PAMUDO can help you, too, on your Wood Products problem. For Pine and Fir cut-stock; factory grade Pine; Fir Plywood in standard sizes or cut to size—it's PAMUDO.
Our thirty-nine years of service to Industrial users of Plywood and lumber products assure you a dependable source of supply.

IF YOU HAVE A WOOD PRODUCTS PROBLEM, CALL

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Straight and Mixed Cars.
Lumber and Lumber products Fir and Pine Mouldings, Doors, Plywood and Cut-Stock.
Stock Millwork—Cut-to-size Industrial Plywood

TACOMA BUILDING, TACOMA 2, WASHINGTON

Warehouse stocks of
Plywood • Doors
Mouldings • Stock Millwork

WAREHOUSES IN 5 PRINCIPAL CITIES

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- Kansas City 5, Kansas
- Chicago 38, Illinois
- Baltimore 31, Maryland
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***F. E. Colesworthy, Purchasing Agent**

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EXECUTIVE OFFICES
WORCESTER 1, MASS., U.S.A.

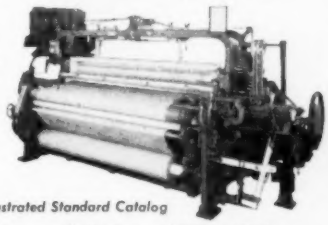
***Writes:**

"We are glad to state that our three Standard Dry Kilns have given us entirely satisfactory service—the best evidence of this being that we are now installing two more."

Interior, showing multizone automatic controls of temperature, humidity and circulation in Crompton & Knowles' Standard Dry Kilns.

Exterior of this firm's battery of Standard Dry Kilns, illustrating careful end-piled stacking of 4" Sitka spruce. Note Standard's metal doors, installed to effect maximum steam savings.

One of the famous products of Crompton & Knowles, a model "W-3" (worsted) loom.



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DRY KILN COMPANY

798 S. HARDING STREET • INDIANAPOLIS, INDIANA

VERSATILE • 115 volt a-c or battery operation; hammer or saw type electrode handle.

DEPENDABLE • Utilizes the inherently accurate resistance principle.

CONVENIENT • Simple to operate; complete in one case; weighs only 10 pounds.

"MOISTURONIC" WOOD METER

reads direct to 150%

ALL-PURPOSE VERSION of this Model 8008 "Moisturonic" Meter, with scale evenly graduated from 0 to 200 (not percent moisture) indicates relative moisture content of many types of materials. Consult us on special applications.

REVEALS wood moisture content on large two-range scale.

CALIBRATION also shows when plaster is dry enough to paint.

TAGLIABUE INSTRUMENTS DIVISION

WESTON ELECTRICAL INSTRUMENT CORPORATION

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TAG WESTON

TO MEASURE THE MOISTURE—THERE'S A METER BY TAG

For Seeds and Powders | For Wood and Leather | For Grains and Nuts | For Tobacco and Hops

Out in the Shop

MOULDER HINTS

WHERE STOCK SHOWS A TENDENCY TO CHECK AFTER BEING RUN at the moulder, this is an indication the stock was or has become unequalized. The stock should be allowed to rest or equalize before continuing the run to minimize the checking. Moisture content should also be checked as heat generated by moulding can cause stock to check where it is not at the proper moisture content.

* * *

THE REQUIRED NUMBER OF KNIVE CUTS PRODUCED AT THE MOULDER is obtained by adjusting the rate of feed in direct ratio to the number of cutting (jointed) knives in the cutterheads. For example, if the cutterheads run at a loaded speed of 3450 r.p.m., and carry four jointed knives, a rate of feed of 100 ft. per min. will produce 11.4 knife cuts per inch on the stock being run. To obtain the same quality of finish when using two jointed knives, the feed would have to be reduced to 50 ft. per min. If a single knife is used to make the cut, the feed would have to be further reduced to 25 ft. per min., at the same cutterhead speed of 3450 r.p.m. If the cutterhead speed were doubled, which is common procedure with single-knife finish, a single knife would produce 11.4 knife cuts per inch at a rate of feed of 50 ft. per min.

and LISTEN!

TO MANUFACTURERS

PRAISE the quality of

W. T. SMITH'S

PINE–OAK–GUM–HICKORY and other HARDWOODS

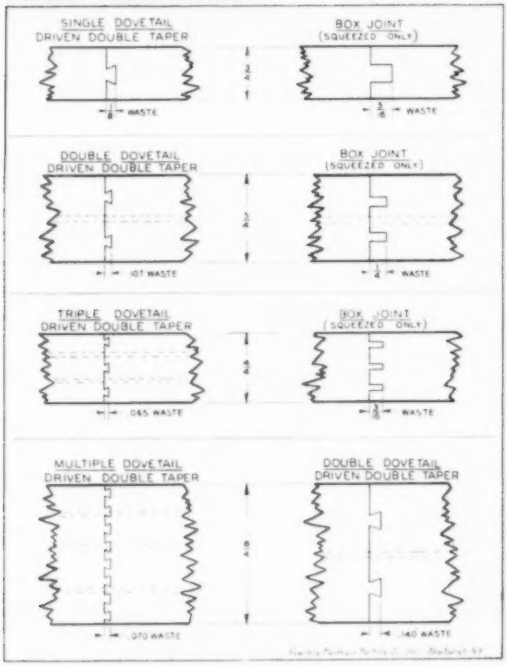
USE OUR MIXED CAR SERVICE

W. T. SMITH LUMBER CO.

CHAPMAN, ALABAMA

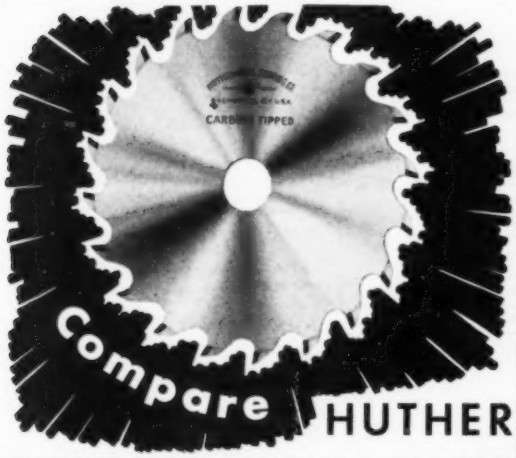
67 YEARS OF MANUFACTURING YELLOW PINE AND HARDWOODS

LUMBER CONSERVATION


SINGLE DOVETAIL DRIVEN DOUBLE TAPER
BOX JOINT (SQUEEZED ONLY)
DOUBLE DOVETAIL DRIVEN DOUBLE TAPER
BOX JOINT (SQUEEZED ONLY)
TRIPLE DOVETAIL DRIVEN DOUBLE TAPER
BOX JOINT (SQUEEZED ONLY)
MULTIPLE DOVETAIL DRIVEN DOUBLE TAPER
DOUBLE DOVETAIL DRIVEN DOUBLE TAPER

COMPARISON OF WASTE IN GLUE JOINTS

See story on Page 54



CARBIDE TIPPED SAW BLADES

with any others and you'll agree they're outstanding. Cut with equal ease thru plywood, laminated wood, teak, fireproof lumber, linoleum, plastics etc. Huther Quality in Carbide Saws is a "standard" among leading craftsmen.

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SAW MAKERS FOR OVER 65 YEARS

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Take advantage of these Moore Developments to increase production and reduce cost of seasoning and handling wood products:

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★ Moore Cross-Circulation Kilns (for conventional loads or unit packages)

★ Moore Cross-Circulation Direct-Heated Kilns (using natural gas or fuel oil)

★ Moore Cross-Circulation Veneer Dryers

★ Moore Master Recorder-Controllers, with Automatic Vent Control

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★ Moore Fin-Pipe Radiation

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Oldest and Largest Manufacturers of Dry Kilns and Veneer Dryers
JACKSONVILLE, FLORIDA · BRAMPTON, ONT., CANADA · VANCOUVER, B. C., CANADA · NORTH PORTLAND, OREGON

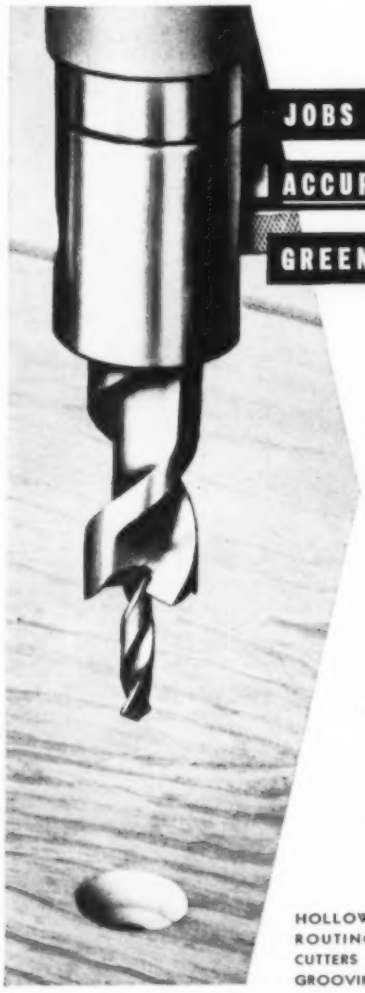
LUMBER CONSERVATION

(See picture on page 53)

To assist manufacturers of wood products and others interested in conservation of lumber, Muskegon Machine Company, Newburgh, New York, has released this chart showing how lumber wastage can be reduced in edge joining of lumber. The three top joints in the left column on the chart are greater in strength than those immediately to the right of them, but reduce considerably the amount of waste in forming the joint. Incidentally, the multiple taper dovetail type of joint shown in the lower left can be re-sawed anywhere without reference to the location of the dovetails.

PLYWOOD POINTER

A WELL BALANCED LAYUP OF A 9-PLY MOLDED PLYWOOD PANEL WITH A SWIRL MAHOGANY FACE VENEER is built up with 1/28-in. mahogany face veneer, ⅛-in. crossbanding, 1/20-in. straightbanding, 3/16-in. crossbanding, 1/20-in. straightbanding, ⅛-in. crossbanding, and a 1/28-in. mahogany back. A fully balanced plywood construction is produced in such a manner that the bend may be made at right angles to the grain of the face veneers and parallel to the grain of of the crossbanding in a relatively short bend.



JOBS DONE SMOOTHLY,
ACCURATELY WITH
GREENLEE COUNTERSINKS

Countersink precisely as you want to . . . swiftly, smoothly with GREENLEE Adjustable Countersinks which let you set the lead drill at whatever boring depth desired. Wide range of sizes . . . three types: (1) with extension-lip type counter for boring flat-bottomed holes, (2) with beveled cutting edges corresponding to the taper of flat-head screws and (3) with beveled cutting edges to countersink for screw heads below the surface of the wood. Write for facts. Greenlee Tool Co., 2160 Herbert Avenue, Rockford, Illinois

Ask for free Boring Chart for Wood Screws . . . simplifies tool selection

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HOLLOW CHISELS • MACHINE BITS • DRILLS
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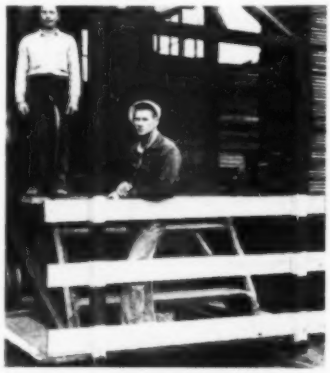
GROOVING TOOLS FOR TIMBER CONSTRUCTION

SAFETY IDEAS



Steps on gantry crane guarded to prevent anyone falling down stairs from falling in front of crane.

Holes cut in blind corners and entrances to warehouses so that both carrier and pedestrian traffic may see one another.

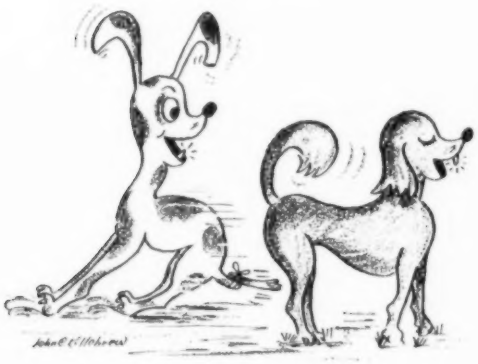
JOINTER HINT

WHERE THE TWIST IN STOCK TO BE FACED AT THE JOINTER IS GREAT, the fence should be moved out to make a narrow cut and the high points reduced with light cuts, reversing the stock after each cut. The fence should then be set back and the entire surface face to a true flat surface.

MOULDER PRESSURE

A CHAIN-BED FEED REQUIRES LESS PRESSURE THAN THE ROLL FEED and is more positive which reduces the breakage of small moulding from roll pressure and "dwells" where the heads cut deeper.

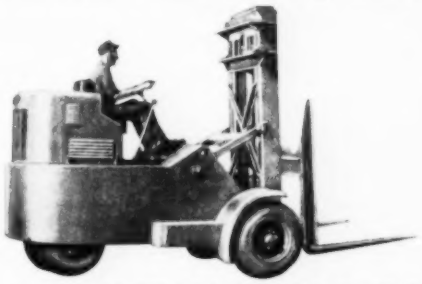
WOODICTIONARY



SINGLE-TOOTH DOGS

A steel tooth-like projection which is attached to a carriage knife and operated by a lever. Carriage dogs are used to hold the log firmly on the carriage.

REBUILT–GUARANTEED
MATERIAL HANDLING EQUIPMENT



2—Ross 19 HT High Lift 6000 lb.-7500 lb. capacity, 14′ lift, 48″ forks
1—Ross 19 HT 6000 lb. capacity 10′ lift 48″ forks, pneumatic tires
1—Ross 15HT 15,000 lb. capacity 14′ lift 54″ forks, pneumatic tires crane attachment
2—Baker 6000 lb. gasoline fork lifts 84″ lift
2—Krane Kar 20,000 lb. capacity Model AY solid tires
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We also have other gasoline or electric fork trucks—Write for our 20 page catalog.

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SOFT TEXTURED
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When you buy WOODWORKING KNIVES

SPECIFY BADGER

for Edge Stamina...

Always "in stock"

NOTEWORTHY because BADGER Knives can "take it"! Made of finest tool steel . . . heat treated for uniform hardness and maximum toughness . . . precision ground. This means long, dependable service . . . it means EDGE STAMINA! Contact your dealer or order direct from factory.

Engineers for the Woodworking Industry

BADGER KNIVES — WISCONSIN KNIFE WORKS
BELOIT, WISCONSIN

SALUTES

(Continued from page 25)

C. D. DOSKER

He is chairman of the Timber Resources Committee of the Kentucky Chamber of Commerce; chairman of the Regional Advisory Committee of the American Forest Products Industry and chairman, Forest Products Advisory Committee, National Security Industrial Association.

A native of Michigan, his family moved to Louisville when he was a boy. He attended public school in Louisville and the University of Michigan. He served in World War I in the Field Artillery.

He entered the lumber business in 1922 in Michigan. In 1925 he returned to Louisville as a mill representative for several southern hardwood mills. He became associated with Gamble Brothers in 1926, becoming vice-president and general manager in 1927. He became president in 1945.

T. D. PERRY

Since retirement to private consulting work in 1947 he has continued to contribute to national trade and professional magazines as he has done since 1914. His articles on adhesives and plywood are frequently found in WOOD combined with WOOD PRODUCTS.

Lecturing assignments at Yale, M.I.T., Syracuse, and Michigan State keep him up on what the youngsters are doing. His sessions are eagerly awaited and enjoyed by faculty and students alike for he tosses actual problems at the group for the answers.

An A.S.M.E. member since 1917 and a "fellow" since 1947, Tom Perry also is active in F.P.R.S. and the Rotary. His hobbies are stamp collecting, woodworking, growing baby evergreens, and grandchildren.

From over a half-century of experience in the plywood and adhesive field, he brings to forest products meetings a wealth of experience which few can equal.

INCREASE PRODUCTION as much as 100%

Lift Installed at	Production Increase
Double Surfacers	40% to 75%
Rip Saws	30% to 60%
Cut-Off Saws	20% to 50%
Matchers and Edgers	20% to 40%
Stacking Kiln Trucks	50% to 100%
Box Car Loading Dock	25% to 50%

INSTALL LEITELT LUMBER LIFTS

A glance at the above figures, FURNISHED BY USERS, proves how Leitelt Lumber Lifts increase production.

You can get these profitable increases in production and save the labor costs of one or two men with a Leitelt Lumber Lift in your plant or yard. Leitelt Lumber Lifts are built in a full range of capacities for handling loads from three to thirty tons easily and safely.

Let Leitelt engineers solve your production problems. Write Today.

LEITELT IRON WORKS

"Pioneer Builders of Lumber Lift Equipment"

335 Mill St., Grand Rapids 2, Michigan

Also Manufacturers of Power Transfer Cars Car Pullers Power Driven Turntables Subcars and Leitelt Swing Tables

A typical modern installation showing a Leitelt Lumber Lift feeding two cut-off saws. This is how one of the largest table manufacturing plants in the country has increased their production at the vital point where material starts to flow through the plant.

MACHINE FEEDS

(Continued from page 36)

mounted rubber cups. There is an adequate amount of vertical yield to compensate for any variations in thickness of stock being fed. The major portion of the feed wheels is encircled with an effective safety guard.

Somewhat in the same general category, yet different, is a power feeding device developed by one of the radial saw manufacturers. This is for use in connection with the radial saw. It may be used wherever longitudinal operations are being performed with one of these versatile units. The radial saw has a pedestal of its own which is normally in a position directly behind the arbor of the machine. Therefore a different kind of feeding arrangement is necessary in this case.

The supporting and power-providing unit for this type of power feed is behind the machine. A frame like a capital letter U is provided. This frame is laid down in a horizontal plane. The two legs of the U extend over the edge of the saw bench at points to right and left of the saw arbor. Two live shafts follow beneath and project beyond the two legs of the U. These two shafts receive roll-type units which bear upon the top of the material. The revolving rolls feed the stock over the bench from right to left. Ripping, shaping, molding, rabbeting and grooving are all put on a power-feed basis with a device of this kind.

LOG COSTS

(Continued from page 27)

some states. More trucks are contracted for in Oregon than in any other state. The ratio in Washington and Oregon combined is about two company owned trucks for each contracted truck, whereas in Oregon the ratio is three to one.

Reasons for variations in miles of road reported by operators in each state are many and complicated. Mileage of public roads available, accessibility of timber, state load weight specifications, number of idle spur roads etc. are just a few of the variables affecting the output per mile of road reported.

In Table 1, operators not reported as owning specific units such as tractors were excluded in arriving at the output for that specific item. By including all operations in the totals and averaging the results, a picture is obtained of the average operation. This is shown in Table 2.

Due to the various combinations of equipment used, an average operation is more of a myth than a reality. No operation has four-tenths of a power shovel, but on the average ten operations having a combined output ten times the daily average will have four shovels among them. An especially low figure is significant in that it may mean use of horses skidding to ground mills, thus eliminating tractors and trucks. It may mean use of other equipment such as hand saws etc. Interpretations are as variable as the 1367 operations included in the above compilations.

Judicious use of this information should be valuable to persons planning logging operations as well as to equipment manufacturers and others.

Table 2

AVERAGE OPERATIONS BY STATES

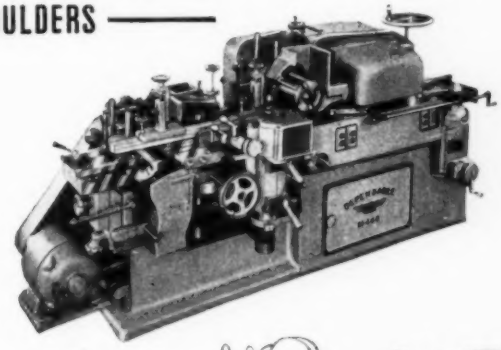
State	Daily Output M'BM	Power Saws	Number of Equipment Units Owned Tractors	Donkeys	Shovels	Trucks	or Used Miles of Road
Washington	72.3	2.3	3.1	2.8	0.6	5.6	8.4
Oregon	74.0	2.5	3.3	1.8	0.4	5.1	9.4
California	101.7	2.9	5.3	0.9	0.4	7.0	11.4
Arizona	72.5	3.3	4.4	0.4	0.4	14.2	15.5
New Mexico	70.3	2.7	5.4	0.2	0.7	16.0	17.5
Idaho	66.7	2.3	1.9	0.5	0.4	6.1	19.0
Montana	39.7	1.7	4.7	0.4	0.2	4.5	10.4
Colorado	21.6	1.4	2.2	0.0	0.4	5.8	12.9
Wyoming	18.2	3.5	2.6	0.1	0.0	4.8	6.9
Utah	16.8	1.9	1.5	0.0	0.0	5.0	0.4

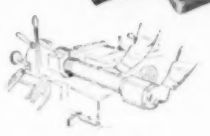
WOODICTIONARY

BOTTOM LOADER

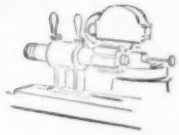
Member of a loading crew who attaches tongs or crotch grabs to logs to be loaded. (Syn.—Ground Loader)

NEW! DEPENDABLE'S ELECTRO-UNIT DRIVE MOULDERS





Quick, easy removal of Cartridge Spindle Unit



Head being ground on Cartridge Spindle Unit

Head being jointed on Cartridge Spindle Unit

QUICK SET-UPS, HIGH SPEED, LOW COST
FEATURES OF MOULDERS COSTING UP TO 3 TIMES MORE

New cartridge spindle units make it possible to set-up, grind, joint and pre-test all patterns in grinding room. Change in pattern made in one minute. **A moulder man's moulder,** in 4, 6 and 8 inch capacities . . . High speed production; heavy cast-iron construction; variable feed; standard high speed spindles without frequency changer; convenient, quick-acting controls; plenty of horsepower through standard motors; 100% ball and roller bearings, pre-lubricated. Less maintenance. Jointer furnished on machine. Designed for top performance in large, medium and small mill operation, multiple and single knife work. Priced so that the smallest shop can afford one.

See your dealer or write to factory for full details.

DEPENDABLE QUALITY • SERVICE

Dependable MACHINE COMPANY
2320 High Point Road • Greensboro, N. C. • U. S. A.
MOULDERS • KNIFE GRINDERS • HEAD GRINDERS • KNIFE JOINTERS • KNIFE BALANCERS • RIP SAWS

P & H HOUSING

(Continued from page 29)

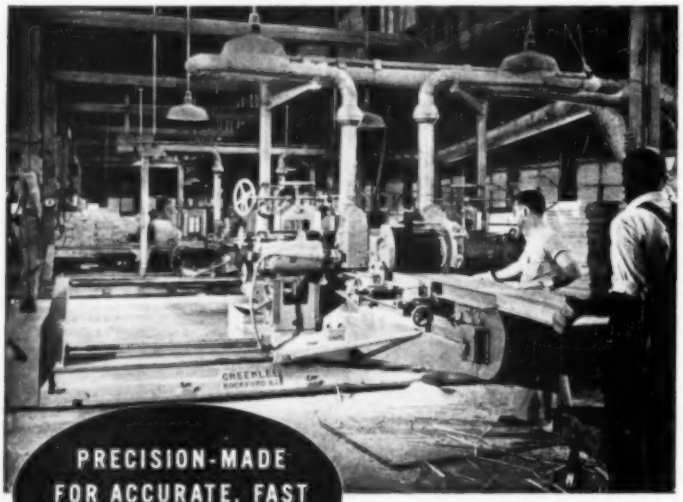
height, sliding doors for interior use in closets. Other interior doors are hollow core flush doors. Exterior doors are solid core flush doors. Exterior door units are all prefitted into the door frame and hung so that they are ready for installation with no trimming at the site.

The use of tough materials such as the adhesives and plaster board used showed the wisdom of carbide tools. Saws and cutterheads are carbide tipped and have proved their value many times over.

Producing six houses a day, P&H's Houses Division is also busy running a production line system on a 200 barrack order for the U. S. Navy Construction Batallion group out in Port Hueneme, Cal. This seabee contract calls for the building of demountable barracks 20 ft. by 48 ft. by 8 ft. Labeled personnel shelters and emergency mobilization units, these insulated, stressed skin type buildings will be used in any spot where the "Bees" are building. Demountable means that they, the barracks, are moveable quickly and easily. P&H is supplying the complete barracks down to the electric wiring components and a package of tools necessary for barracks building.

Exterior panels are Masonite hardboard, batt type insulation is used, and the interior panel is Upson board. The stressed skin construction principle and building method is employed in the same basic way that P&H builds homes. Carriage bolts, drive screws, and other removable pins are used to hold the panels together. Laminated beams consisting of 3-plys of nominal 1-in. by 10-in. Southern Yellow Pine are used rather than solid beam types.

With production up 78.3 percent over last year, a top-notch government contract, and the need for housing in defense areas growing, the Harnischfeger Houses Division is moving rapidly toward the goal of proving that housing in a hurry is a practical idea that justifies the time, effort, and research money that has gone into making it possible.



PRECISION-MADE FOR ACCURATE, FAST PRODUCTION

GREENLEE DOUBLE CUT-OFF SAW IN OPERATION AT STATESVILLE PLYWOOD AND VENEER COMPANY

...Greenlee No. 542 Electric Double Cut-Off Saw

"We wish to congratulate you on the fine double-end trim saws recently placed in operation here. They show beautiful workmanship and they really do a fine job."

That's what Mr. Elbert M. Shelton, president of Statesville Plywood and Veneer Company, Statesville, N. C., has to say about their new GREENLEE No. 542 Cut-Off Saws.

Reasons are many why the GREENLEE No. 542 does such smooth, accurate work . . . and at high speed! First is because each one is made so sturdily . . . built to handle the work with ease and stand up under production requirements at high speeds for a long, long time.

Next is its "watchwork like" construction and the precise setting arrangement which permits making adjustments to a fraction of 1/64". Accurately graduated dials show the exact setting of the movable housing, and the machine cuts exactly to the size indicated by the dials.

And remember, too, the GREENLEE No. 542 is extremely versatile. In addition to its double cut-off operations, with attachments it will handle your shaping, relishing, tenoning, dadoing or scoring.

Get all the details on this precision machine today. Write Greenlee Bros. & Co., 1930 Twentieth Avenue, Rockford, Illinois

GREENLEE

GREENLEE WOODWORKING MACHINERY: MORTISERS • BORERS • SAWS • TENONERS • PLANERS • SHAPERS • MORTISING and BORING TOOLS

BORO CUTS COSTS

(Continued from page 33)

sult of lack of care rather than the product of our particular industry. Falls, bruises, strains, most of which could have been prevented by proper attention, make up a large part of the list of injuries. This indicates the importance of constant vigilance on the part of the various foremen to watch for unsafe acts and correct them *before* something happens.

Then too, when a foreman knows that every accident in his department will have to be explained by him to the entire safety committee, the management and the insurance engineer at the regular meeting, he has an added reason for wishing the safety record of his department to be clean as possible.

Safety Pays

Progress of this safety effort over the past few years has resulted in a decrease of 62.3 percent in the cost of the workmen's compensation insurance. Management is perhaps even more pleased with the fact that these regular safety meetings away from the plant, attended by both foremen and management, have stimulated a feeling of comradeship between these groups that has contributed immensely to the improvement of every phase of the business.

HARDBOARD

(Continued from page 34)

wet mat which is pressed between rolls and then in a hot plate press. A wire screen, in each press opening, facilitates the escape of steam and one board surface generally reveals screen impressions. The other side is smooth being in contact with a smooth press platen.

The binding action between the fibers on the screen side at the board surface is not as firm as that between the body fibers of the board. These screen-side fibers must be removed for full board strength. This is done by planing or sanding.

Hardboard Cores

Hardboards are extensively used as cores for 3-ply panels. Often veneers are applied to only one surface, in most cases it is applied to both. The standard 1/28-in. veneer thickness is used, and most faces are sliced. Preparation of faces is the same as for plywood. The veneers may be bonded either in a hot press or cold press with urea or phenolic for hot pressing and cold-setting urea in the cold press.

In hot pressing, adhesive manufacturer's specifications should be followed. Both the face and the core must be of uniform thickness to obtain a firm bond. After removing screen marks, the core thickness should be accurate to .005-in. over the entire area. The one-piece core eliminates the thickness difference often found in ordinary core stock, and resultant poor bonding due to thickness difference is therefore non-existant.

Urea pressing temperatures are lower than phenolic. Panels made at temperatures ranging from 220° to 250° are inclined to be flatter than those made at temperatures of 300° to 350° so that urea bonding is preferred, generally.

Stresses often set up in veneer cores because of core shrinkage are eliminated and much warping trouble is thus bypassed. No warping occurs because the grain of the core is not at exact right angles to the face grain because hardboard cores have the same properties in all directions.

Hot panels should be solid piled immediately so they can cool gradually. Doing this prevents moisture loss from one side of the panel to the other during cooling which results in imbalance in the shrinkage stresses set up by the face veneers. It is desirable to retain the original hygroscopic moisture in the panel during cooling to prevent face veneer shrinkage.

The moisture content of the hardboard core should run about five-six percent, but not deviate too widely from this figure so that the moisture content will be near the equilibrium moisture of the panel in use. Moisture content of veneers on opposite sides of the panel should be the same to prevent imbalance.

Face and back species do not necessarily have to be the same, but thickness and physical properties should be. Flattest boards are obtained if the grain of faces and backs run parallel to each other. Tests have shown that panels with hardboard cores are flatter than 3-ply plywood of the same thickness for the above reasons.

Extensive application has also been found for hardboards with veneer on only one side. While not as flat as balanced panels, commercially flat panels are readily obtainable when film adhesive is used, and veneer moisture is controlled. If veneer is to be used on only one side of the panel, its moisture content should be below equilibrium, (below six percent) so that there will be a slight tendency for the veneer to expand rather than

(Continued on page 60)

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Straight, Sharp Glue Joints • cross or with grain

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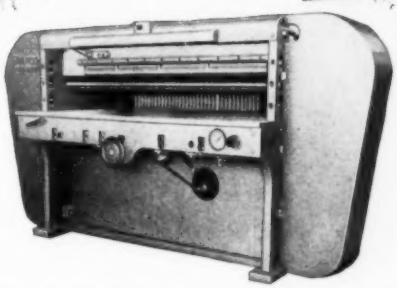

The New Francis Hydraulic Precision Cutter incorporates many features discovered under practical, production procedures in the plants of America's leading veneer and furniture manufactures.

Designed, developed and engineered for durability, the Francis Cutter has been tested and proved on America's production lines. It is sturdily and rigidly constructed, accurate to 1/64 cuts. It delivers sharp, straight glue joints on veneers up to 90 inches in width and in bundles 7" thick.

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(Continued from page 59)

contract.

Thin veneers set up less shrinkage stresses than the standard 1 28-in., but because of the cost of producing them and the extreme care necessary to sand them the standard thickness is more practical.

While the square foot cost of hardboards may be higher than that of core veneers, this is offset by the savings in trim losses and cost of fabricating. Greater flatness and hardness as well as uniformity of results recommends the use of hardboard for cores of 3-ply panels.

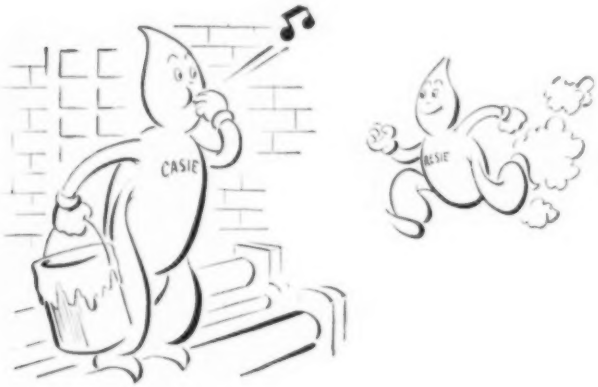
Hardboard Cross-Banding

Furniture manufacturers have experimented with the use of hardboards as cross-bands. Some of the table tops and desk tops have been in use for two to three years and the results seem to justify the following conclusions: Tops remain flat with little evidence of sunken joints; lumber cores containing sound knots and even knot holes can be used; short blocks laid end to end in the core can be used without showing end joints through the finish. Furthermore, greater cross-band thickness of hardboard permits thinner core stock with less board ft. cost of the core. Waviness in the finish is eliminated, both that due to joint condition as well as that caused by difference in cross-band density. Finally, hardboard cross-bands reduce damage from surface bruising.

Uniform cross-band thickness to obtain firm gluing is a must and this condition is met when screen marks are planed off the back of the hardboard.

Adequate time must be allowed between coating and pressing to avoid starved joints when hot presses and liquid adhesives are used. Adequate time must also be allowed before planing so that the moisture in the core can equalize. The most exacting manufacturers allow a week.

In view of the reduction of sunken joint trouble, the elimination of finish waviness caused by annual ring growth of cross bands, the improvement in indentation resistance, the possibility of lower cost lumber cores, the eliminatoin of veneer waste and the elimination of labor in preparing veneer cross-banding, it would seem that the use of hardboard cross-banding will increase as its advantages become more widely known. This is especially true since cost estimates show that the economies introduced more than offset the differences in cost per sq. ft. for hardboard cross-bands as contrasted to veneer.



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DREXEL

(Continued from page 35)

obtaining of capital and the relationship of stockholders. (c) The relationship of wages, prices, and profits.

8. *Labor–Management Relationships*
   (a) History of the American Industrial System.
   (b) The growth and development of labor unions.
   (c) Labor Laws.
      (1) National Labor Relations Act. (2) Fair Labor Standards Act. (3) Walsh-Healey Act. (4) Fair Employment Practices Act. (5) State Labor Laws.
9. *Work Simplification*
   (a) A program conducted by some specialist in "Work Simplification and Motion Economy."

II. TECHNICAL SKILLS

A. *Purpose*
To give foremen the opportunity of improving their knowledge of the various technical phases neces-

sary for the efficient management of their departments.

B. *Operation of the Course*

1. *Groups*
   (a) Foremen by departments; that is, all rough machine foremen meeting together, all finish machine foremen, all cabinet foremen, etc. (b) Occasional meetings of all foremen in a plant, and all foremen in the company when the subject is of common interest.
2. *Meeting times*
   (a) One meeting each week until all departments have at least one meeting each spring and each fall. (b) The meetings shall begin at 3:00 p. m. and adjourn not later than 5:00 p. m. with dinner following. (c) Place of meeting—to be worked out for convenience.
3. *Method of Conduct*
   (a) Chairman of meeting—Personnel Director. (b) Discussion, lecture or both by plant manager, superintendents, foremen or other qualified person.
4. *Mechanics*
   (a) Invitations to each meeting accompanied by outline of topics for discussion. (b) Use of charts, graphs, models, etc. where possible. (c) Detailed write-up to members at conclusion of sessions.

C. *Suggested Topics*

1. *Yard Group*
   Subjects for discussion. (To be developed.)
2. *Rough Machine Group*—Subjects for discussion
   (a) Lumber Grades, yield, waste, labor. (b) Automatic cutoff saws vs. swing saws. (c) Do conveyors save labor and speed production? (d) Glue jointers, vs. straight line ripsaws. (e) How much attention can you give to utilizing scraps and not allow labor to wipe out the savings? (f) Gluing cores . . . glue reels vs. steam heated presses vs. electronic presses. Which is better in regard to efficiency, quality and working conditions? (g) How long should cores be conditioned before planing? Before veneering? Under what conditions—such as temperature, moisture content, circulating air, etc.? Should cores have sticks between them while in the hot box? (h) Should moulders be located in rough machine, or finish machine department? (i) Discussion on glues—animal vs. resin. (j) Best method of ripping—parallel or wedge ripping?
3. *Finish Machine Group—Subjects for Discussion*
   (a) Discussion of forms and patterns for shapers and routers . . . metal lined and wood forms. (b) Metal patterns for bandsaw joints, variety saw, double end mitre saws and joints, variety saw, double and mitre saws and tenon machine . . . difference in speed, quality of work and labor. (d) Dowelled joints vs. spline vs. mortise joint. (e) Electronic presses vs. air presses for frames and banding tops. (f) Is hand sanding necessary after Nash sanding on turned post? (g) Discussion of tenon operations to eliminate hand work on slower machines, such as variety saws, shapers or routers. (h) Which is better for light shaping, a detail shaper or router. (i) Which is better—to have a skilled man to operate each machine, or have a subforeman or key man in charge of several machines with non-skilled operators.
4. through 10. Finishing, Rubbing, Shipping, Carving, Veneer, and Inspection Groups.

To Be Continued

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Bruce specializes in quantity production of solid and glued-up Southern hardwoods, either completely or partially machined—and in flat dimension stock. Modern dimension plants at Memphis and Little Rock are centrally located for timber and transportation. Sawmills in Arkansas, Mississippi, and Alabama. Bruce has been producing furniture dimension for over 25 years. You can depend on our quality, prices and service. Send us your specifications or samples and let us quote on your requirements.

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MAINTENANCE

(Continued from page 32)

contours of all formed knives were ground by hand. Where the production machine could be operated by the helper during this maintenance period, it remained in production. Otherwise the machine was shut down and production was halted until the maintenance operation was completed.

In the finish machine department the foreman was required to sharpen all saws, boring bits and cutters with the exception of the three bandsaws. The band sawyers all fitted up their own saw blades and used their own filing, setting and brazing equipment. The finished saws varied in condition and operation according to the skill and pride of the individual sawyer. The bandsaws remained idle during the saw fitting process.

The foreman was never able to keep pace with the maintenance requirements of his department so was forced to do much of this work on an overtime basis. This added work also took a heavy toll of the efficiency of his supervision and overall planning. All of these machine operators and the foreman were of the higher wage bracket. All, however, were not as skillful in saw or knife maintenance as in the operation of their own jobs and the degree of their efficiency was reflected in the quality and quantity of work produced.

Under the engineer's guidance a survey was made of the ability, capacity and natural skill for saw and knife maintenance work of these men and the cut-off saw operator was eventually selected to head the department. Reports show that very good results and substantial savings have been obtained.

This is no isolated case. Even in plants which maintain a separate saw and knife maintenance department, some machine operators often cause much trouble by touching up on the sly. This does not refer to conventional planer knife touch up or moulder knife grinding performed with the machine's equipment or hand stoning knives to prolong the life of their cutting edge. It is rather an attempt to change the cutting bevel of a knife or the tooth shape of a saw to suit one's individual likes or dislikes.

Much of this meddling comes when the operator is required to set up his own cutterheads. To prevent this, many plants include cutterhead setup with the saw and knife maintenance department duties.

Cooperation Essential

Close cooperation of top management, plant supervision, machine operators and the saw and knife maintenance department are necessary for good results. While it may be well to hold this department responsible for efficient operation of saws and machine knives it services, the department head should be permitted to suggest proper tool installation and operation at the machine.

The saw and knife maintenance department should be given full knowledge of what production results are expected as well as complete operational information for each tool, such as speed, rate of feed, and species and condition of wood to be cut, if best results are to be obtained.

It must be admitted there is a current shortage of skilled saw and knife maintenance labor—and the ranks are being thinned daily. Age alone is no deterrent to efficient saw and knife maintenance. As a matter of fact, the older man usually has better judgement, more experience and knowledge and more often possesses that special brand of patience required to produce an accurate precision job. Modern saw

Easy set-up . . .
positive alignment
• Diehl's complete line of standard cutter heads includes a wide variety of vice grip heads. Diehl vice grip heads are easy to set up, give positive alignment, and have greatest gripping power for retention of dovetail cutters. A few of them are illustrated, both with and without Diehl's self centering sleeve. Diehl vice grip heads are safer and more satisfactory for heavy cuts and high frequency spindle speeds. Diehl heads are rugged . . . they stay on the job!
And if your job requires special heads, Diehl can design and build them. Diehl can meet your cutter requirements. Ask for our latest cutter catalog.
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and knife maintenance equipment involves the use of the head more than the hands and the operator's service is largely mental and mechanical.

The prime consideration of all such maintenance operations is quality rather than quantity. Quantity has also been materially increased by the use of automatic fitting and sharpening machines. The operator employs his head for adjustment and operation of the machine and saves his hands for those few operations which still require a limited amount of hand touch up work.

Modern Equipment Pays

As the operator gains familiarity and skill in the use of modern automatic equipment, the greater is the quantity of precision sharpened tools turned out for the larger profit of management, and if management is wise, for the better pay of the operator.

It is hard to teach old dogs new tricks, but where the older operator has an open mind, his basic knowledge of saw and knife fitting procedure allows him to learn much faster than the green trainee. The man who fights the introduction of such equipment into his department displays either his ignorance or lack of ability to use it to advantage, or he has a misplaced pride of his skill in time-consuming and laborious hand methods which cannot operate to the best advantage of his employer.

Proper Management

Trained personnel is required to operate this department with proper skill, knowledge and experience to get the most from the equipment. The head of such a department must be a man of sound judgement, must have proper executive balance to plan the work without slighting any phase of the maintenance process, and the ability to use the natural skills of the men under his direction to the best advantage.

No two woodworking plants have conditions that are identical and their saw and knife maintenance requirements must also differ. Modern saw and knife maintenance equipment is available to suit any individual operating condition to eliminate costly and laborious hand methods. Their selection should be based upon practical utility rather than price. It is well to remember that the first cost is never the final cost.

Foreign Woods

(Continued from page 42)

reddish brown, sharply outlined from the yellowish sapwood. The wood lacks luster, is odorless but with a somewhat astringent taste. It is light and soft but firm and strong for its density. Variable in weight. Sp. gr. 0.40 to 0.60. It works easily, finishes smoothly and local ly, is considered a good substitute for Spanish cedar. The tree is plentiful in several parts of its range. The wood contains a gum or resin that makes it difficult to dry out. This characteristic might be useful in making vats for various purposes. It has been imported only in experimental quantities.

Other names:

CEDRO ESPANO—Honduras, Nicaragua
CEDRO ESPINOSA—Panama
CEDRO MACHO—Costa Rica
CEIBA—Colombia
CEDRO COLORADO, CEIBA COLORADO—Venezuela

Other woods called SAQUI-SAQUI: None

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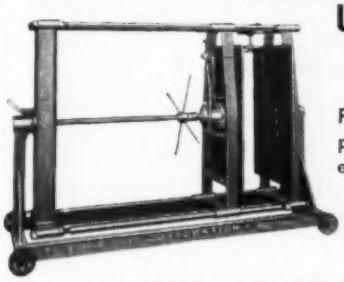


UNION *Air-Operated Revolving Case Clamp

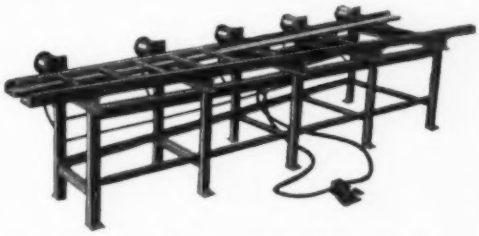
WITH SELF-ALIGNING BALL BEARINGS

Fast, dependable, accurate. Back platen is fixed. Operating platen is equipped with oilite bronze bearings. Clamping frame is cradled in self-aligning ball bearings. Frame may be revolved to any angle or locked in any position.

*May be equipped for hand operation if desired.

UNION 1100 SERIES TABLE-TYPE PANEL OR FRAME CLAMPS

The air-operated 1100 Series includes table-top sizes from 30" x 30" to 56" x 104". Maximum opening from 26" x 26" to 52" x 100". Average clamp has two side and two end air pressure units but can be equipped with more if desired. Tables have planed surfaces with extra holes for adjusting the back stops. Height of high pressure plate and high back stop is 2" unless otherwise specified. Standard height of table, 33".



UNION Air-Powered Ladder Clamp

Hand or foot-operated. Operation is uniform, fast, positive. Tapered model (as illustrated) is 14' long — equipped with five 4" air cylinders. Pressure bar has 4" stroke. Maximum clamp opening is 12" at one end and 36" at the other. Assembles any length ladder up to 14'. The straight model is 20' long—equipped with four 8" air cylinders. Pressure bar has 8" stroke. Maximum opening, 31".

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Products . . . . processes
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Timber Cruisers' Tables

A new set of volume tables for use in estimating the board-foot content of northern conifers has been developed to help northeastern foresters and timber cruisers. Published by the U.S. Forest Service's Northeastern Forest Experiment Station at Upper Darby, Pa., the new volume tables were prepared by C. Allen Bickford. They are contained in a booklet titled "Form-Class Volume Tables For Estimating Board-Foot Content of Northern Conifers." They are similar to the Mesavage-Girard volume tables, published by the U. S. Forest Service in 1946, which are used widely in other regions of the country. Write to U.S.D.A. station at 105 Motors Ave., Upper Darby, Pa., for more information.

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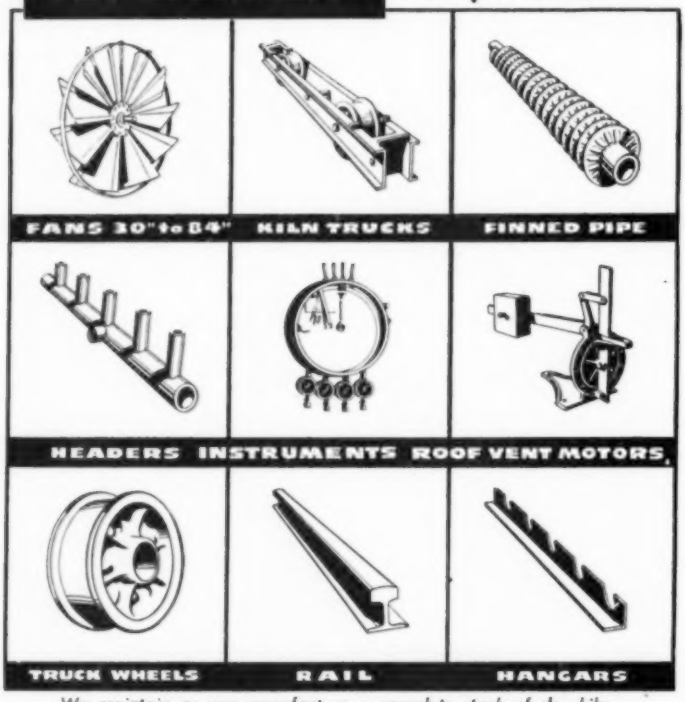

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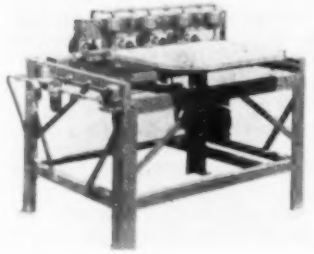
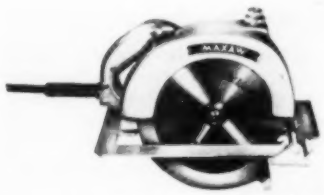


Air-Operated Borer

This air operated borer, designed for the dinette industry, provides for semi-automatic, simultaneous boring of four dowel holes on fixed centers. Precision boring is assured by accurately machined spindles and drill bushings which eliminate any tendency of the drill to wander as it starts into the work. Precision ball bearings, sealed against dust and dirt, are used on all moving parts. It is manufactured by Engineering Associaters, Dept. W, Bldg. 12, 40th & Butler Streets, Pittsburgh 1, Pa.



New 8-inch Power Saw

An important addition to the Fred W. Wappat line is their new 8" MAXAW. It is a compact, precision-engineered power saw, built to provide added utility and extra capacity for every cut with plenty of blade to spare. Many new features are embodied in this unit which result in easier, faster cutting and effortless operation all day. It cuts 2 ⅝" on a square cut and at 45° it cuts through lumber 2 ⅜" thick. It is light and easy to handle, weighing only 14 lbs. For further details, write Fred W. Wappat Division, Dept. W., Mayville, N. Y.

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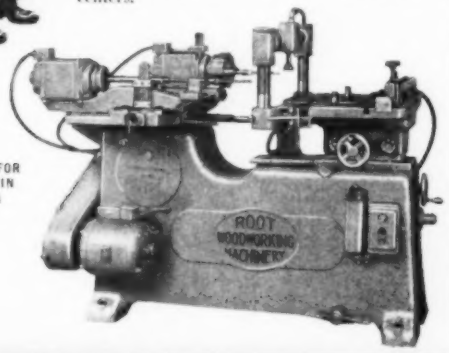
Dowel and screw holes are bored quickly and accurately for your furniture frames on this power-feed electric spindle Style K-250 borer. Bores in-line, out of-line on close or extended centers.



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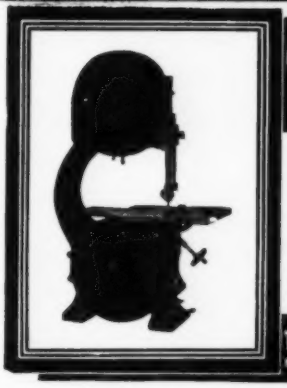

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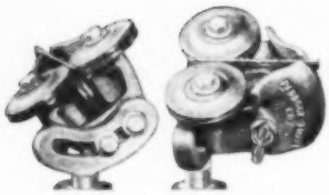

New Band-Saw Guide

The Paddock Tool Company, Dept. W., 1418 Walnut Street, Kansas City, Missouri, announces a new model saw guide as an addition to their line of ball-bearing band-saw guides. A feature of this new guide is that it holds the blade at any angle.

The manufacturer claims these advantages: The three ball-bearing wheels in each guide reduces the danger of saw-blade breakage; they hold the working portion of the blade so that more work can be performed; and the blade can be held at any angle. When 36 inch band-saw machines are equipped with the new Model 20 set of guides and the blade held at an angle of 45° angle, material can be cut to any length. The guides are easily adjusted to the width, thickness and the desired angle of the blade.

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We make PERMAWOOD panels in standard sizes, in all veneer construction from 3/20" to 1-1/16" thick, and in lumber core construction in 3/4" and 13/16" thickness. Widths manufactured are from 30" to 48"; and lengths from 36" to 96".

Write for latest stock lists and prices.

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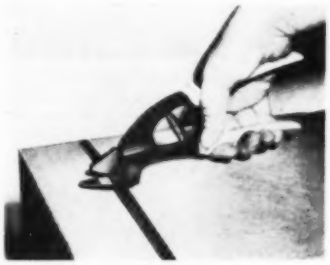
Established and in continuous operation since 1918

Darlington, South Carolina



Strap Cutting Tool

The E14AO Strap cutter, a lightweight tool designed to cut flat steel strapping up to ¾" x .035" with minimum effort, is announced by the Acme Steel Co., Dept. W., 2840 Archer Ave., Chicago.

Among features of the simple construction is a band guide which prevents straps from wedging sidewise between the blades. A flat lower blade permits easy insertion beneath tensioned straps on bales, bundles and cartons. Frame and blade are constructed from forged steel for rugged performance. Narrow span handles are curved to fit the grip of the operator. Measuring 9½ inches long, the tool weighs one pound.

New Wood Welder

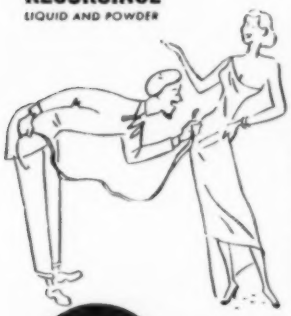
A new vacuum tube, self-excited-type, wood welder operating on a set frequency of 27.12 megacycles, and which materially increases the speed of bonding wood, formica, plastic or their combination with metal components, has been developed by the Wood Welder Manufacturing Company, Dept. W, 2758 Whittier Boulevard, Los Angeles 23, California.

The new wood welder with penetration range from ¾ to 2 inches provides tight bonding of materials in a matter of seconds, which would ordinarily require several hours.

Custom Processed for the WOOD-WORKING industry

UREA
PHENOLIC
RESORCINOL
LIQUID AND POWDER

Synthetic RESINS



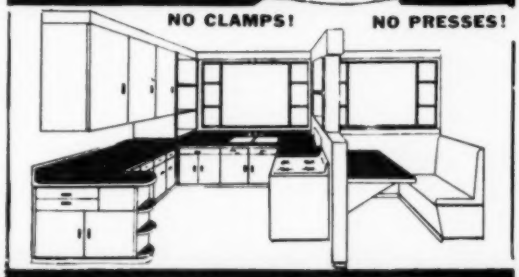
SYNVAROL WR—liquid resin with various solid content—Non-staining, excellent water resistance and highly extendable. For hot and cold press.
SYNVARITE US, a neat powder—Non-staining, excellent water resistance and highly extendable. For hot and cold press. (Variety of hardeners for all working requirements and non-crazing quality)
SYNVARITE P, Powder Phenolic Resin—For exterior grade plywood, a waterproof bond and short curing cycles.
SYNVAREN, Phenol and Resorcinol Resins—for room and intermediate temperature cures, waterproof bond, excellent for table tops.
SYNVAR VE-50, Polyvinyl-Acetate Glue—for edge and joint gluing.

SYNVAR RESINS

Manufacturers of Fine Resins Since 1939.

SYNVAR CORPORATION
Wilmington, 99, Delaware

PERFECT FOR ON THE JOB INSTALLATIONS!
FOR CEMENTING...
consoweld · resilyte · textolite · plastilite · formica · micarta pressed wood · v-board
ADHESIVE
STIX
WATERPROOF CEMENT
QUICK DRYING
ADHESIVE PRODUCTS
FOR WOOD, METAL, WALLS, ETC.



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1660 BOONE AVE · NEW YORK, N.Y.
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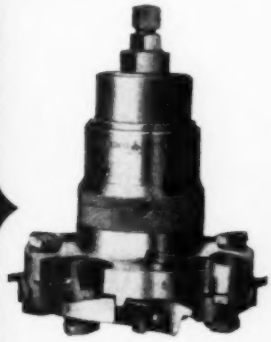
SHIMER MATCHER HEADS

give you

- PERFECT CUT!
- TRUE BALANCE!
- LONG RUNS!
- QUICK CHANGES!



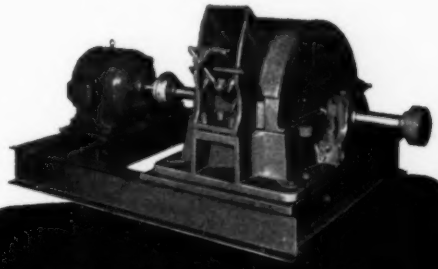
Available in 4, 6, 8 or 12-bit models with exclusive self-centering feature and long-lasting, easy, quick to sharpen Shimer Circular Bits!

there's a Shimer Head or Cutter for every cutting problem...
WRITE FOR YOUR FREE COPY OF OUR ILLUSTRATED PATTERN BOOK!

SHIMER
SAMUEL J. SHIMER & SONS, Inc.
70 RACE STREET • MILTON, PENNA.

M & M utilization equipment

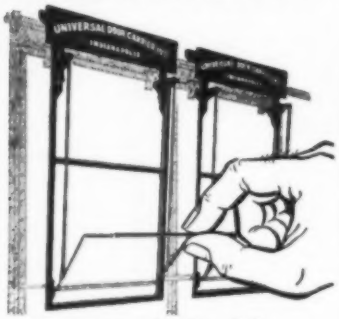
For Hogging Fuel.



Let M & M Disposal Equipment turn your waste into profits. These machines are built in many types and sizes for slabs, edgings, trim, blocks, veneer, bark, and other combustible waste. Don't overlook the extra dollars that can come from utilizing every available bit of waste. Send us your problem and we'll show you how M & M Disposal Equipment can solve it.

MITTS & MERRILL
1018 South Water • SAGINAW, MICHIGAN

Handle Dry Kiln Doors
SINGLE-HANDED?



You can do it with
The Universal DOOR CARRIER

One man—with one hand—and a Universal Carrier can open or close a kiln *in a few seconds.* And the carrier makes your doors last longer!—by gentler handling, without twist or strain. Automatic locking gives you good tight closures every time.

Write for further facts!

Universal DOOR CARRIER, INC.
1117 Cornell Avenue
Indianapolis 2, Ind.

Speed Selector Drive

A versatile new Countershaft Drive which comes as a complete package unit, provides wide speed variations for a variety of applications. This new variable speed drive is designed for installations where driven shaft speeds must be lower than motor shaft speeds. This low cost unit utilizes 7" and 8" combination sheaves and is available for drives from 2 to 15 HP.

The new assembly consists of a sealed ball-bearing counter-shaft stand, secured by rigid slide rods to an adjustable motor support for all motor sizes up to NEMA No. 326. The built-in control can be mounted in any one of a number of positions to suit the requirements of the installation. Write to Speed Selector Inc., Dept. W, 118 Noble Court, Cleveland 13, Ohio.

Bushings for Grinding Wheels

Precision bushings for grinding wheels are the latest development in grinding wheel manufacture announced by Norton Company of Dept. W, Worcester, Mass.

These new patented bushings, which are pressed into the wheel,

ESTABLISHED 1883

Wood-Mosaic Co.
Incorporated

MANUFACTURERS
VENEERS
African Mahogany—Philippine Mahogany
Canadian Birch—Canadian Maple—Oak
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Birch—Oak—Walnut—Maple—Mahogany

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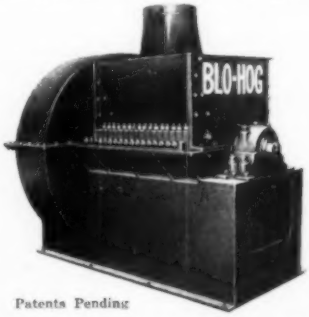
LUMBER AND PLYWOOD
Teak—Japanese Oak—Japanese Birch

PHILIPPINE MAHOGANY LUMBER AND LOGS
Immediate shipment from large stocks—4/4 to 16/4—on our yards, or direct shipments from the Islands to any U.S.A. or Canadian Port.

Main Office and Factories

5000 CRITTENDEN DRIVE LOUISVILLE 9, KY.

BRANCH PLANTS
Huntington, W. Va. Jackson, Tenn.
Woodstock, Ont., Canada



Patents Pending

MONTGOMERY BLO-HOG
Eats Up Everything

. . . including Pine, Oak, Gum, Hickory, Elm, Wet Veneer Round-up and Sandy Bark.

Conveyor-fed, no attendant is required to "feed the hog."

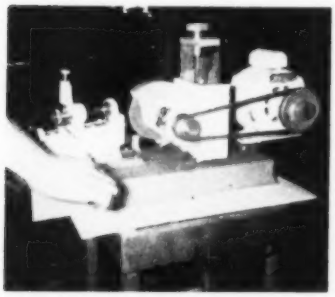
Sturdy breaker lugs give absolute protection from major damage caused by tramp steel.

Maintenance costs unbelievably low.

Write for bulletin and details.

Jacksonville Blow Pipe Co.
Jacksonville, Florida

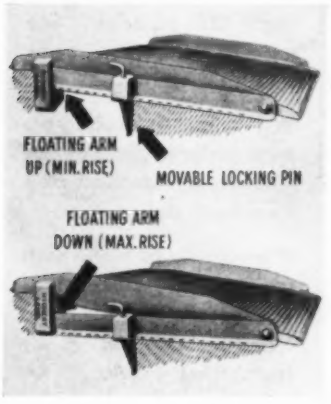
have several distinct advantages over poured lead bushings which have been standard practice for many years. The new precision bushing maintains more consistent hole size from wheel to wheel with consequent advantages of uniform mounting conditions for the user.



Boring Bit Grinder

This new Boring Bit Grinder is semi-automatic, and accurately sharpens the lips and the brad point symmetrically, at approximately three minutes per bit. It is the only device for grinding brad point bits by machine. The taper point makes possible use of high speed drill bits, because one no longer needs to hand file to sharpen.

For further details, write the John Widdicomb Co., Dept. W, Grand Rapids, Mich.
slug BORO



Self-Leveling Locking Device

Elizabeth Iron Works, Inc., have announced the development of a new, improved self-leveling locking device and floating arm for their "One Man Bridge Ramp." Designed originally during World War II at the request of the U. S. Navy for use with fork lift trucks on railroad sidings, the all-steel "One Man Bridge Ramp" has a load capacity of 15,000 lbs. and can be placed and secured by the truck operator alone in less than two-minutes.

The original locking device consisted of chained pins which were inserted into the multi-holed floating arms when the ramp was positioned. This prevented shifting. Now, locking pins are an integral part of the floating arm locking bar which travels back and forth in its own housing along the floating arm and secures the ramp by butting up firmly against the loading platform. A copy of a new folder and survey sheet may be obtained by writing to the Elizabeth Iron Works, Dept. W., P.O. Box 360, Elizabeth, N. J.

Unit Dust Controller

Now you can effectively control dust in limited and remote areas without benefit of a central dust control system, says The Day Company, Dept. W., 810 Third Ave. N. E., Minneapolis 13, Minn.

The company, which manufac-

DID YOU KNOW

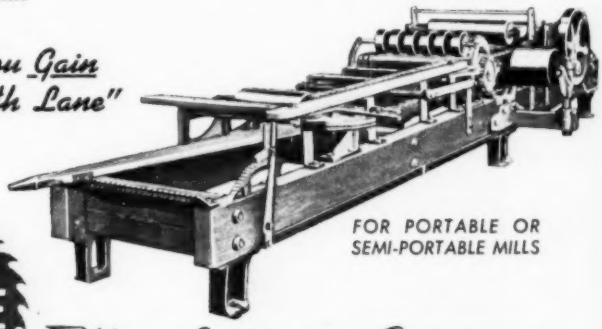
FRICTION destroyed 11 billion feet of lumber!

In 1932, heat generated by pulling one log over another on a dry, hot day, started a fire that devastated 260,000 acres of Oregon's timberland, bankrupting an entire county.

and did you know.....

The LANE No. 3 Gang Edger is designed for fast, smooth edging of board after board — will produce 3,000 ft. per hour (without "friction" on the part of the operator) to effect a dependable *savings* for mill owners *all over the country*. This LANE Chain Feed Edger will take lumber up to 4¾" thickness and 21" width. Ask for information about this profitable equipment for your semi-portable or stationary mill.

"You Gain with Lane"



FOR PORTABLE OR SEMI-PORTABLE MILLS

LANE *Manufacturing Company*
MONTPELIER, VERMONT

tures dust control equipment announces that they are now building a new dust unit controller designed to operate as an independent unit and provide maximum dust recovery over a wide range of volume at low operating cost. According to Day, these new units are especially desirable and very practical in plants where central dust control systems are not feasible.

Cable Hoists

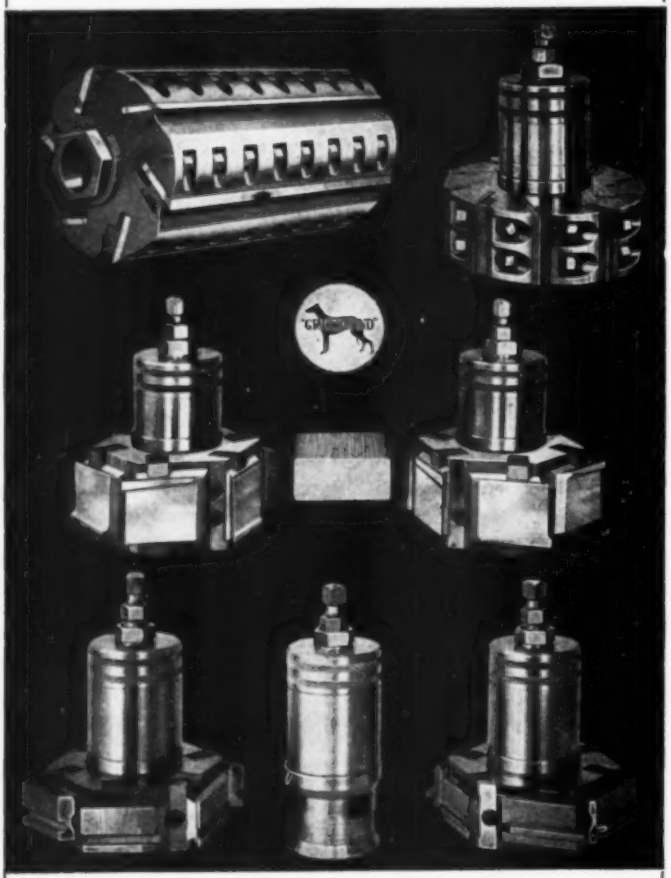
A new line of heavy-duty electric cable hoists is announced by the Cleveland Chain & Mfg. Co., Cleveland. Hoists are manufactured in ¾ - 1 - 1½ - 2 - 3 and 5 - ton capacities. They will be sold under the trade name of "Bob-Cat." An outstanding feature is its total enclosure of the motor within the cable drum. Motors are completely protected against moisture, splashing liquids, weather, dust and corrosive atmospheres.

Hoists are powered by high torque Ohio Motors. Gear reduction is by means of a double internal (epicyclic) gear train that incorporates two Weston-type load brakes. Motor brake is of the equalizing solenoid type connected to an up-limit cutoff switch. All Bob-Cat load-lifting and carrying parts are made of steel forgings and castings. Safety factor is in excess of 6 to 1. Designed for operation on 220, 380, 440 or 550-volt 3-phase, 60-cycle current, Bob-Cats are available with either pendant rope control or push-button control on pendant cable. A transformer in the electrical supply line cuts voltage at the control to 110 volts. For full details and specifications write The Cleveland Chain & Mfg. Co., Broadway and Henry Streets, Dept. W., Cleveland 5, Ohio.

General-Purpose Counter

The Post Machinery Company, a subsidiary of Reid Bros. of Beverly,

CUTTER HEADS - - - For Every Possible Requirement



Jones & Orth Cutter Head Co.

SEATTLE 14, WASHINGTON MEMPHIS 3, TENN.

Do you use

the modern methods of packing and loading? Of course, we mean pallettizing your products.

We can furnish you with pallets of all types —both assembled and knocked down.

We can also furnish you cut-to-length crating in Pine and Hardwoods and other industrial stock.

Send us your specifications for our quotation.

L. N. BAGNAL

P. O. Box 2896 Tel. 8115
Winston-Salem 1, N. C.

Mass., in collaboration with the General Control Company, have adapted their *Counter* for general-purpose counting in several variations, including total count, rate of count, and predetermined count.

A long-term exclusive contract has been effected between the two concerns, wherein the General Control Co., Dept. W., Boston 34, Mass., will handle the sale of the Counters, and will manufacture the related controls. The Counters will be known as the Post Promatic Electronic Counters.

Pack Set Power Unit

Motorola Inc., Dept. W, 4545 W. Augusta Blvd., Chicago 51, Ill., is now producing a new Pack Set Power Supply designed to increase the utility of the Motorola F.M. 2-way radiophone pack unit by making it convertible to semi-fixed or mobile application while preserving the dry battery supply for portable operation only.

A plug-in power connection and switching facilities on the Pack unit permit quick and easy transfer from internal dry battery power supply to an external power source.

ARKANSAS OAK FLOORING COMPANY

Pine Bluff, Arkansas

P.O. Box 858 Phone 4300

Semi-finished

SOUTHERN HARDWOOD FURNITURE DIMENSION

Glued-up Panels
Core Stock
Drawer Sides & Backs
Mouldings

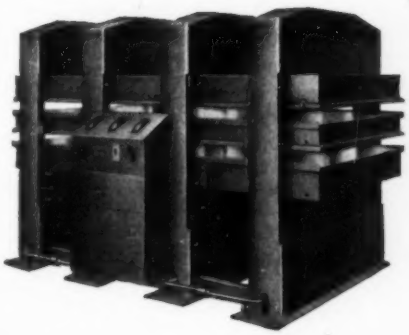
"Our 36th Year"

We Solicit Your Inquiries.

Mills at:

Pine Bluff, Arkansas
Alexandria, Louisiana.

the modern design



for increasing production of your veneering and laminating operations

The New

VB *hot press*

Check ALL these "Years Ahead" features that give you . . . . .

ACTUAL PRODUCTION ADVANTAGES

The modern design of the "VB" Press gives you savings in glue, veneer and labor. After-drying storage space is eliminated and the smoother surface of panels produced eliminates sanding and finishing costs. Compactly constructed, the "VB" Press requires no pit; giving the user a wide choice of placement for more efficient production.

Write for Illustrated Bulletin

"VB" Hydraulic Presses are available in single, two, three or four openings.

- ALL ENCLOSED FRAME
- ALL WELDED STEAM HEATED PLATENS
- PRE-ADJUSTED WORKING PRESSURE
- COMPACT HYDRAULIC SYSTEM
- AUTOMATIC CONTROL PANEL

V.B erthelsen ENGINEERING WORKS, INC.

P. O. BOX 1423 • LOCKPORT ROAD • JOLIET, ILLINOIS

FAMOWOOD . . . *the AMAZING* . . .

ALL-PURPOSE PLASTIC for wood finishes!

Applies like putty . . . Sticks like glue!

FAMOWOOD is the answer...where wood finishes are important. Simple to use...efficient, lasting, time-saving, when filling wood cracks, gouges, nail and screw holes or correcting defects. Dries quickly, does not shrink. *Stays put* under adverse conditions. FAMOWOOD sands easily, does not gum up sander. *Takes spirit dye stains freely.* Waterproof and weatherproof when properly applied. Ready to use—*"right out of the can."* Fifteen matching wood colors ...with amazing matchless wood finishes.

USED BY FURNITURE MFGS • SASH AND DOOR MFGS
CABINET MAKERS • CONTRACTORS • BOAT BUILDERS • PAINTERS
AIRCRAFT PLANTS • PATTERN SHOPS • HOME BUILDERS • ALL WOOD PRODUCTS

FAMOWOOD descriptive literature & price list on request. Distributor & Dealer inquiries invited, write Dept. WP-10

BEVERLY MANUFACTURING COMPANY 9118 SOUTH MAIN STREET LOS ANGELES 3, CALIF.

Manufacturers of...FAMOWOOD • FAMOGLAZE • FAMOSOLVENT

Speed Production
WITH
COLPRES 10 GLUE

With Colpres 10 a furniture manufacturer of cherry and maple colonial spool beds now glues in ½ work day what formerly required 24 hours and 2 shifts.

Hardwood or softwood parts glued with Colpres 10 are ready for machining in ten minutes.

Colpres 10 is a quick setting, two part, room temperature urea resin adhesive. It is water resistant, non-staining, and is unsurpassed for strength and its cold, quick setting characteristics.

Send us this ad clipped to your letterhead for copy of our technical bulletin and free sample of Colpres 10.

TIMELY SUGGESTION — Have our Laboratory test your glued wood parts for meeting Government and industrial specifications for strength, moisture resistance, etc.

TIMBER ENGINEERING CO.
1319 18th ST., N. W., WASHINGTON 6, D. C.
W

Names... Events

Deaths

LOUIS B. HANCHETT, 73, associated with the Hanchett Manufacturing Co., Big Rapids, Mich., for over 50 years, was killed in an automobile accident.

JOHN L. ROE, of the Cummer Sons Cypress Co., Jacksonville, Fla., and President of the Southern Cypress Manufacturers Association since 1944.

Promotions

MARK K. PINKERMAN, for the past five years Advertising Manager of the Reichhold Chemicals Inc., Detroit, Mich., is transferred to the executive offices in New York City.

A. R. CAPUTO, Assistant Sales Manager of The American Box Co., Cleveland, Ohio, is named to head the expanded Sales Department of the 50-year-old Co.

WILDER G. PENFIELD, JR., is appointed Export Manager of the Chemical Division of The Borden Co., New York, N. Y.

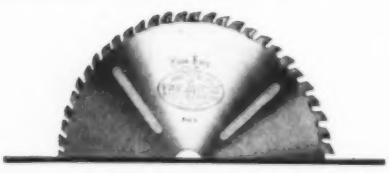
DR. R. W. MERRITT and S. F. THUNE have been named Assistant Vice Presidents, respectively, of National Starch Products, Inc., New York, N. Y.

AMERICAN CYANAMID COMPANY has named several executives to new posts, as follows: E. D. POWERS, Vice President in Charge of Production, was elected to the Board of Directors; he succeeds H. P. EASTMAN who retired August 31st. A. J. CAMPBELL, General Manager of the Industrial Chemicals Division, and HOWARD HUSTON, Assistant to the President, were elected Vice Presidents. L. C. DUNCAN was elected Assistant to the President.

New Jobs

GEORGE E. HOPF, for 27 years associated with the Company in various capacities, has been appointed Manager of the newly-created Marketing Division of Henry Disston & Sons, Inc., Philadelphia, Pa.

JOHN B. DAVIDSON has been appointed Associate Director of Research of the Plaskon Division, Libby-Owens-Ford Glass Company, Toledo, Ohio.



A REVOLUTIONARY DEVELOPMENT
VIBRA-FREE*
CARBIDE TIPPED
MEYCO SAWS

You will be interested in this radically new development IF your carbide tipped saws sound like a police siren; IF they develop a "snaky" cut after short usage; IF they dull fast because carbide tips become chipped.

MEYCO VIBRA-FREE* saws embody a new principle in saw design, a new control over vibration by the use of sound absorbing dampers, which eliminate excessive vibration, excessive noise . . . produce smoother cuts, longer life for carbide tips. You get MORE cuts between sharpenings and operators LIKE to use Vibra-Free* blades. Investigate this revolutionary development TODAY. Write for full information and price list.

*T. M. Reg. U. S. Pat. Off.

W. F. MEYERS CO., INC., BEDFORD, INDIANA

FURNITURE
CABINET
PANELING
HANDLE
BRUSH BACKS

•

FIRM ASH
CABINET ASH
TOUGH ASH

PURE WHITE
ASH STOCK

The Atchafalaya Basin of Louisiana produces the most uniform white ash for color and texture in America. That's why the finest manufacturers use Port Barre White Ash.

Large and well assorted stocks are ready for immediate mill shipments at all times. We can meet your exact needs, all thicknesses and grades 5/8" to 12/4". Prompt attention will be given to your inquiries.

The Port Barre
Lumber Industries, Inc.

Manufacturers of Southern Hardwoods
Port Barre, La.

G.R.D. ... your most RELIABLE Source for DOWELS

Yes... look to G.R.D. as a reliable source for dowels, plugs, buttons, drawer stops, table pins; precision-made and absolutely uniform. Quick delivery, too — your complete order is on its way promptly after receipt of your call or written request. All popular sizes are carried in stock.

G.R.D.'s entire line is competitively priced.

Write for information and prices on small wood parts, profile and variety lathe turnings, and metal corner braces. *Phone 3-2814.*

GRAND RAPIDS DOWEL WORKS
761 Burton St., S.W., Grand Rapids 9, Mich.

LUMBER
Southern Hardwood—Cypress—Yellow Pine
Ample Kiln Capacity

DIMENSION
Edge glued or solid
Machined to specifications

PLYWOOD (Hardwood)
Hot Plate or Cold Press

FLOORING
Oak, Beech, Pecan

HANDLES
DOWELS

VENEER (Hardwood)
Rotary cut only

OAK TREADS
Thresholds—Mouldings—Cedar Closet Linings

BOX MATERIAL

Your Inquiries Invited

ANDERSON-TULLY COMPANY
BOX 28 • Memphis 1, Tenn.

THEODORE H. DAVIS, district forester for the Champion Paper & Fibre Co., Canton, N. C., has been added to the staff of American Forest Products Industries as a Forester. JAMES C. MCCLELLAN, for five years a Forester for AFPI, is promoted to the position of Chief Forester.

CLYDE B. MORGAN, who has been President of Eastern Corporation, Bangor, Me., is elected President of Rayonier, Inc., which has plants at Port Angeles, Shelton, Hoquiam, Wash., and Fernandina, Fla.

ALBERT G. BLANK is appointed Assistant Sales Manager of Procter & Schwartz, Inc., and will assist MYRON T. FLEMING, recently named Vice President in charge of Dryer Sales.

ROBERT N. NELSON is named Assistant Sales Manager of the Pneumatic Tool Co., Rockford, Ill.
Division of the Sunstrand Machine

LACHLAN MACKENZIE has been appointed Vice President in charge of all manufacturing operations for M & H Woodworking Co., Portland, Oregon.

Associations

W. L. GRIEBELER, former assistant professor of agricultural engineering at Oregon State College, has joined the staff of the Douglas Fir Plywood Association as California Field Representative.

C. R. FRAZIER, former northeastern inspection supervisor for the Southern Pine Inspection Bureau, has been added to the trade promotion staff of the Southern Pine Association.

E. S. HARRAR, Professor of Wood Technology, Duke University, and Secretary-Treasurer of the Virginia-Carolinas Section of the Forest products Research Society, announces that the annual meeting of the Virginia-Carolinas Section will be held at the Clemson House in Clemson, S. C., October 26, 1951.

CALIFORNIA REDWOOD ASSOCIATION announces that standard grading rules for Redwood lumber now permit shipment of dressed finish in all lengths from three to 20 feet.

Miscellaneous

The Board of Governors of the American Furniture Mart, Chicago, voted not to hold an official Fall Market during the week of October 22-27, 1951. However, the Fourth Annual Market of the National Association of Summer Furniture Manufacturers will be held at the Mart during the week of October 22nd, as planned.

MINNESOTA MINING & MANUFAC-

(Continued on page 74)

MANSFIELD
Dimension
SERVICE

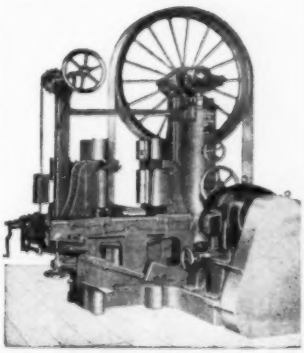
Check these 5 points . . .

1. **LOGS** . . . from Mansfield's perpetual yield timberlands insure our raw material.
2. **LUMBER** . . . selected from 40,000,000 ft. of Hardwoods and Pine produced yearly in Mansfield's two bandmills.
3. **CRAFTSMANSHIP** . . . modern machinery, trained manpower, experience and know-how.
4. **PRODUCTS** . . . though specializing in glued-up panels and moulded stock we are equipped to handle your entire Dimension Stock requirements.
5. **SERVICE** . . . dependable and set up to meet your most exacting requirements.

Send us your specifications today for all your Dimension needs. Prices, samples and delivery dates will be promptly furnished.

MANSFIELD HARDWOOD LUMBER COMPANY
P. O. Box 91 Shreveport, La.
Band Mills: Zwolle and Winnfield, La. . . .
Dimension Plant: Zwolle, La.

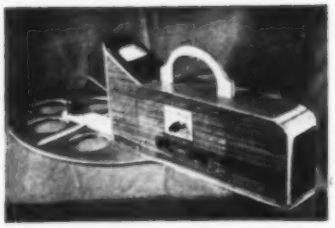
McDonough 54"
Vertical Band Resaw



New Model! New Features!

√ **Variable gear drive for feed rollers. 40-225 lin. ft. per min.**
√ **Heavier wheels.**
√ **Larger shafts.**
√ **Timken Bearings.**

McDONOUGH
MANUFACTURING CO.
Incorporated 1888
Eau Claire, Wisconsin
World's Largest Producer of Band Resaws



The Hedden Metal Detector

The Model D.C. II Hedden Metal Detector is being extensively used in the lumber industry. This 10 pound instrument can locate a six penny nail in the heart of a 20-in. diameter log. The unit works both horizontally and vertically and operates on batteries. It is easy and simple to use and operate. The detector head is designed so that an exact fix indicating where the metal is located in the log or wood is quickly obtained. The Hedden Metal Detector is a money saver in saws, veneer knives and downtime. Write for complete information today.

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All Northern Hardwoods
Lumber
Veneers
Plywoods
NHV
Phone, Wire or Write
NORTHERN HARDWOOD VENEERS, Inc.
Butternut · Wisconsin

NAMES . . . EVENTS

(Continued from page 73)

TURING Co., St. Paul, Minn., has established a regional sales office and warehouse in Dallas, Texas.

DELUXE SAW & TOOL CO. announces, effective July 1st, the formation of a Sales Division to be known as the Carbide King Tool Corporation, with headquarters in Chicago. The officers are: A. G. FELDMAN, President, C. MILLER, Vice President; C. GOODMAN, Secretary & Treasurer.

CLARKE VENEERS & PLYWOOD have moved their offices to Room 203, Palmetto State Life Insurance Bldg., Columbia 1, S. C.

THE LOUIS ALLIS CO., Milwaukee, Wis., is celebrating its 50th Anniversary this year.

CONNER LUMBER AND LAND CO., Laona, Wis., and Wakefield, Mich., has acquired the Underwood Veneer Co., Wausau, Wis., their timber holdings in Michigan and Wisconsin, and their sawmill in Bessemer, Mich.

TEN MEMBERS of Britain's woodworking machinery industry arrived in this country September 4, sponsored by the Economic Cooperation Administration's technical assistance program and the Anglo-American Council on Productivity. The woodworking machinery plants they will visit from September 7 to October 17 are: Porter-Cable Machine Co., Syracuse, N. Y.; Hanchett Manufacturing Co., Big Rapids, Mich.; C. O. Porter Machinery Co., Grand Rapids, Mich.; John Widdicomb Co., Grand Rapids, Mich.; Yates American, Beloit, Wis.; Ekstrom, Carlson & Co., Sundstrand Machine Tool Co., and The Weiman Co., Rockford, Ill.; Prescott Co., Menominee, Mich.; C. K. L. Machinery Co., Oshkosh, Wis.; Filer-Stowell Co., Milwaukee, Wis.; Gisholt Machine Co., Madison, Wis.; The G. M. Diehl Machine Works, Inc., Wabash, Ind.; Crescent Machine Division of Rockwell Mfg. Co., Leetonia, Ohio.; B. M. Root Co., York, Pa., and DeWalt, Inc., Lancaster, Pa.

SCOTT PAPER CO., Chester, Pa., in cooperation with Houston Oil Co., Houston, Texas, plans to construct a 300 ton per day pulp mill at Evadale, Texas.

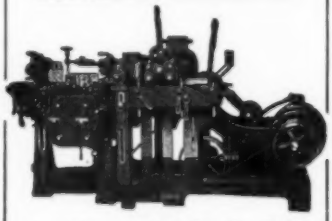
SIMPSON LOGGING CO., plans to install equipment for the manufacture of veneers at its plant in Klamath, Cal.

PARAGON PLYWOOD CORPORATION, owned by the PENINSULA PLYWOOD CORPORATION, Port Angeles, Wash., is planning to build a new mill at Dead Lake, Cal.

(Continued on page 76)

CHICKASAW BRAND
Oak Flooring
SINCE 1905
STRIP PLANK BLOCK
UNFINISHED ★ PRE-FINISHED
Treads ★ Risers ★ Thresholds
Consult us about
Semi-Finished Oak
Furniture Dimension Stock
Straight or Mixed Carloads
MEMPHIS HARDWOOD FLOORING CO.
1591 THOMAS STREET
MEMPHIS, TENN.

HERMANCE NO. 60
HIGHSPEED BALL
BEARING MOULDER



A modern machine for the Rapid and Accurate production of Small Mouldings or for four side planing. Ideal for detail work. Quick to set up. High spindle speed, 5400 RPM, means fine one-knife finish at fast feeds. Handles stock from the smallest to 6" wide and 3" thick; bed drops 16" for running wide stock on edge. For fast feeds it can be furnished with four knife heads, knife jointers, electric grinder and automatic hopper feed. The low initial cost and many advantages of this machine will appeal to you.

Write for Detailed Bulletin

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MACHINE COMPANY
Williamsport, Pa.

FINE *Northern* HARDWOODS FROM WISCONSIN-MICHIGAN

For Every Purpose

The dealer, the builder, the manufacturer, all like these woods of Wisconsin-Michigan. Woods of beauty and utility, they're used in practically every industry. Strong and tough, they resist abrasion and shock. Ideal for exterior and interior building uses, fine furniture, cabinet work, millwork, flooring, veneers. Buy from these leading firms. You can depend upon the quality and service they give.

*Copeland Lbr. Co. - Atlantic and Marquette, Mich.
Sales Office—135 So. LaSalle Street, Chicago—Hardwood Lumber, Dimensions Dry Kilns and Planer.

★

*Goodman Lumber Company - - - Goodman, Wis.
Northern Hardwoods, Hemlock, White Pine, Basswood, Cedar Shingles. Planing mill. Dry kilns. Rotary cut veneers.

★

*†Yawkey-Bissell Corp'n - - - - - White Lake, Wis.
Northern Hardwood and Hemlock Lumber, Maple and Oak Flooring. Members National Oak Flooring Manufacturers Association.

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*Michigan Pole & Tie Co. - - - - - Newberry, Mich.
Northern Hardwood Lumber, Old Faithful Hemlock, Northern White Cedar Poles, Posts, Shingles, Piling, Soft & Hardwood Ties.

★

Connor Lumber Land Co. - - - - - Marshfield, Wis.
(Mills: Laona, Wis., Connorville, Mich.)
K. D. & A. D. Hardwoods, Hemlock, W. Pine—Cedar Shingles, Posts, Poles—Laona Rock Maple & Birch Flg.—Dimension stock.

★

*Ahonen Lumber Company - - - - - Ironwood, Mich.
AAA Brand Hardwood Flooring
Northern Hardwood, Hemlock and White Pine
Dry Kilns Planing Mill

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*Member Northern Hemlock & Hardwood Mfrs. Assn.
†Member Maple Flooring Mfrs. Assn.

Ammunition Box Hardware

If your contracts call for hardware for ammunition boxes like that shown here, or for other ordnance equipment—save time by consulting Stanley, the largest manufacturer of hinges and hardware specialties. The Stanley Works has the "know-how" to help you develop the items you need, and the plant facilities to supply them on time. Send us complete details of your requirements, including prints, if possible. We'll help you meet delivery commitments.

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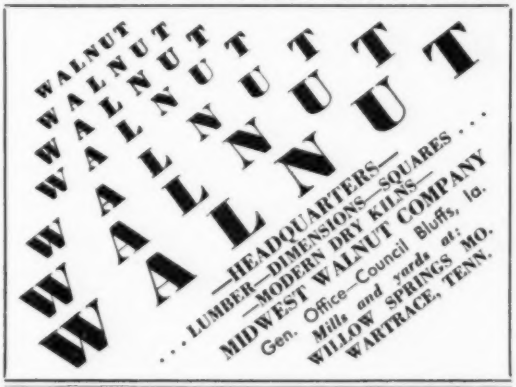

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LOUISVILLE 1, KY.

MILLS: KNOXVILLE, TENN.

John H. Klok, Pres.

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I can help you, as a woodworker, to a top position in the woodworking industry—just as I have helped a host of other ambitious men. My 81-Lesson Home Study Course or my Resident Course at Grand Rapids is highly practical and personal. Yes, the KLOK TRAINING SYSTEM teaches you the arts of Sketching — Drafting — Rod Making — Time Study—Cost and Production Scheduling. Money back trial offer. Write for FREE BOOKLET. State age. Home Study or Resident Course, occupation.

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Woodworking Industry Training Since 1928

156-E, St. Louis St., Grand Rapids 2, Mich.

NAMES . . . EVENTS

(Continued on page 74)

A TEMPLE OF FORESTRY, depicting the many phases of the lumber and wood industries, is to be located in Portland, Oregon, under the authorization of the Chamber of Commerce Forestry Building Exhibits Committee.

THE MENGEL COMPANY, Louisville, Ky., announces that another twenty million dollar paper plant is planned to be erected near Jesup, Georgia.

T & S LUMBER & SUPPLY CO., INC., Patchogue, N. Y., was recently incorporated and the capital stock raised to $300,000.

DETROIT EDGE TOOL CO., Detroit, Mich., announce their removal to a new plant at 6570 E. Nevada, Detroit 34, Mich.

PALMERTON LUMBER CO., Klamath Falls, Oregon, recently received a shipment of 800,000 feet—one of the largest shipments of Phillipine Mahogany ever to enter the Port of Portland. A large part of the shipment is to be kiln dried and planed by LUMBER MANUFACTURERS, INC., of Portland.

POYDRAS LUMBER CO., INC., was recently organized in New Orleans, La., at 2600 Poydras St.

PLYWOOD DISTRIBUTORS, INC., Washington, Okla., has filed articles changing its name to PLYWOOD DISTRIBUTORS AND SUPPLY, Inc.

CHAPMAN MANUFACTURING CO., Corvallis, Oregon, has been sold to a partnership that includes: DAVID R. GILKEY, CHARLES GILKEY, CLAUDE VERRALL, DAVID O. SATRE, J. R. LEWIS—all from Anacortes, Wash.

THE LINNTON PLYWOOD CO. is constructing a plant on the site of the old Clark & Wilson Lumber Co., at Linnton, Oregon.

CAMILL CONTAINER CORP., Queens, N. Y., was recently incoporated, with the following Directors: DAVID D. CATTS, MURRAY MILLER, M. C. HUCKLEY.

OAKHILL MANUFACTURING CO., Little Rock, Ark., has filed articles of incorporation to manufacture furniture. The incorporators are: JACK COLLIER EAST, H. D. HENRY, GLENN HENRY, GEORGE M. LAMBERSON, L. W. BOOKER, and BERCH E. HENRY.

BIRDS EYE VENEER COMPANY, Escanaba, Mich., is spending $150,000 this year for new machinery and general plant improvement. JUEL LEE is General Manager.

•

The Osage Orange is the name of a tree native to Arkansas, Oklahoma and Texas, and was a favorite wood among the American Indians for bows.

Reliable and Recommended Sources For

DIMENSION STOCK

SOLID • GLUED UP • MACHINED TO SPECIFICATIONS

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SEMI OR FULLY MACHINED

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Factory: Manistique, Michigan

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The Harrison Co.
260 Broadway
Brooklyn 11, N. Y.

The Dowel House
Chicago 21, Ill.

R. F. Cooke Mfg. Co.
Orange, Mass.

Frary Wood Turning Co., Inc.
Wilton, Me.

Charlemont Wood Turning Co., Inc.
Charlemont, Mass.

Henry Rowe Mfg. Co.
Newaygo, Mich.

Ottawa Woodcraft
626 Madison St.
Grand Haven, Mich.

E. W. Hannas
98 Liberty St.
New York, N. Y.

Geo. T. Frost & Son
Paterson 4, N. J.

Hoge Lumber Co.
New Knoxville, Ohio

Levenson Woodturning and Manufacturing Co.
3755 South Broadway Place
Los Angeles 7, Calif.

Northern Mill & Turning Co.
3524 Martens St.
Franklin Park, Ill.

E. L. Bruce Co.
1692 Thomas St.
Memphis, Tenn.

DOWEL RODS & PINS

Anderson-Tully Co.
P. O. Box 28
Memphis 1, Tenn.

Grand Rapids Dowel Works
701 W. Burton Street
Grand Rapids 9, Mich.

The Dowel House
Chicago 21, Ill.

C. B. Cummings & Sons Co.
(Mfgr's.)
Norway, Maine

O. L. Baker & Son
2137 North St.
Euclid, Ohio

Henry Rowe Mfg. Co.
Newaygo, Mich.

Saunders Brothers
Westbrook, Maine

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Anderson-Tully Co.
P. O. Box 28
Memphis 1, Tenn.

H. G. Winter & Sons, Inc.
Kingfield, Me.

The Stratton Co.
100 Main Street
Stratton, Me.

Henry Rowe Mfg. Co.
Newaygo, Mich.

The Dowel House
Chicago 21, Ill.

Geo. T. Frost & Son
Paterson 4, N. J.

E. L. Bruce Co.
1692 Thomas St.
Memphis, Tenn.

C. B. Cummings & Sons Co.
Norway, Maine

HANDLES

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P. O. Box 28
Memphis 1, Tenn.

H. G. Winter & Sons, Inc.
Kingfield, Me.

The Stratton Co.
100 Main Street
Stratton, Me.

Allen Rogers Corp.
54 Water Street
Laconia, N. H.

Boss Whipple Mfg. Co.
Fourth Ave. and South St.
Union City, Pa.

The Dowel House
Chicago 21, Ill.

Geo. T. Frost & Son
Paterson 4, N. J.

Henry Rowe Mfg. Co.
Newaygo, Mich.

O. L. Baker & Son
21371 North St.
Euclid, Ohio

C. B. Cummings & Sons Co.
Norway, Maine

ROPE MOULDINGS

Klise Mfg. Co.
Grand Rapids 2, Mich.

AUTOMATIC LATHE

H. G. Winter & Sons, Inc.
Kingfield, Me.

The Stratton Co.
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Stratton, Me.

Grand Rapids Dowel Works
701 W. Burton Street
Grand Rapids 9, Mich.

Wm. J. Oberdorfer, Inc.
Glendale, N. Y.

The Dowel House
Chicago 21, Ill.

Henry Rowe Mfg. Co.
Newaygo, Mich.

Klise Mfg. Co.
Grand Rapids 2, Mich.

Geo. T. Frost & Son
Paterson 4, N. J.

ORNAMENTAL TURNINGS

Henry Rowe Mfg. Co.
Newaygo, Mich.

STRAIGHT WOOD PARTS

Anderson-Tully Co.
P. O. Box 28
Memphis 1, Tenn.

E. L. Bruce Co.
1692 Thomas St.
Memphis, Tenn.

FURNITURE & CHAIR PARTS

Anderson-Tully Co.
P. O. Box 28
Memphis 1, Tenn.

Henry Rowe Mfg. Co.
Newaygo, Mich.

Klise Mfg. Co.
Grand Rapids 2, Mich.

E. L. Bruce Co.
1692 Thomas St.
Memphis, Tenn.

Hourigan Manufacturing Works
2801 Roanoke St.
Chattanooga, Tenn.

SPECIAL TURNINGS

H. G. Winter & Sons, Inc.
Kingfield, Me.

The Stratton Co.
100 Main Street
Stratton, Me.

Lignum-Vitae Products Corp.
151 Boyd Avenue
Jersey City, N. J.

The Dowel House
Chicago 21, Ill.

Henry Rowe Mfg. Co.
Newaygo, Mich.

Geo. T. Frost & Son
Paterson 4, N. J.

E. L. Bruce Co.
1692 Thomas St.
Memphis, Tenn.

BUNGS & PLUGS

Henry Rowe Mfg. Co.
Newaygo, Mich.

KNOBS—WOOD

H. G. Winter & Sons, Inc.
Kingfield, Me.

The Stratton Co.
100 Main Street
Stratton, Me.

Allen Rogers Corp.
54 Water Street
Laconia, N. H.

Henry Rowe Mfg. Co.
Newaygo, Mich.

Geo. T. Frost & Son
Paterson 4, N. J.

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Grand Rapids Dowel Works
701 W. Burton Street
Grand Rapids 9, Mich.

The Woodcraft Corporation
Bay City Mich.

Bennett Lbr. & Mfg. Co.
Zeeland, Mich.

Hoge Lumber Co.
New Knoxville, Ohio

Henry Rowe Mfg. Co.
Newaygo, Mich.

Geo. T. Frost & Son
Paterson 4, N. J.

Curry Wood Products Co.
260 W. Broadway
New York 13, N. Y.

Klise Mfg. Co.
Grand Rapids 2, Mich.

E. L. Bruce Co.
1692 Thomas St.
Memphis, Tenn.

WOOD CARVINGS

Klise Mfg. Co.
Grand Rapids 2, Mich.

Hourigan Manufacturing Works
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Chattanooga, Tenn.

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Henry Rowe Mfg. Co.
Newaygo, Mich.

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North Waterford Spool Co.
North Waterford
Maine

H. G. Winter & Sons, Inc.
Kingfield, Me.

The Stratton Co.
100 Main Street
Stratton, Me.

Henry Rowe Mfg. Co.
Newaygo, Mich.

MOULDINGS—CARVED TURNED & EMBOSSED

Klise Mfg. Co.
Grand Rapids 2, Mich.

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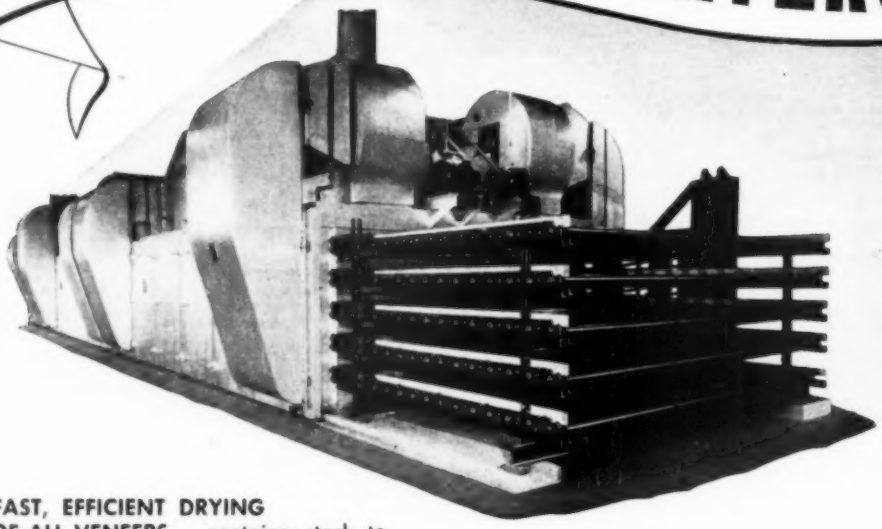
Chattanooga, Tenn.

...Here's *Performance* that promotes a preference for...

COE VENEER DRYERS



FAST, EFFICIENT DRYING OF ALL VENEERS ... container stock, to the finest furniture veneer ...

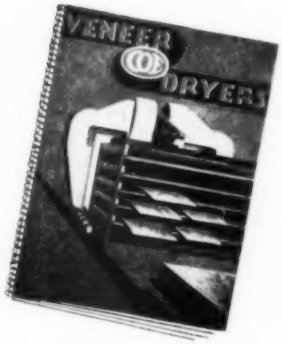
ONE DAY COMPLETE PROCESSING ... from log to car, with exceptionally low man hours per thousand feet of veneer dried ...

FLAT, PLIABLE, UNIFORMLY DRIED VENEER ... No direct loss occasioned by splitting, discoloration, or marking. No indirect loss from moulding due to insufficient drying, overweights, checking, etc.

REMARKABLY LOW STEAM CONSUMPTION ... due to the Coe Counterflow Air System ...

EXTREMELY LOW MAINTENANCE COST ... Averaging less than 1% of the original cost ...

SIZES FOR ALL NEEDS ... varying from 10½ feet to 153 feet in length, with three, four, or five lines, and capacities for drying 1000 to 60,000 or more board feet every 24 hours.



For more complete information, write for the Veneer Dryer Catalog.

The COE MFG. Company

316 BANK STREET • PAINESVILLE, OHIO

Western Outlook Optimistic

Outlook for Western wooden box and crate production is generally optimistic, members of the Pacific Division of the National Wooden Box Association were told at their annual summer meeting in San Francisco in August.

The full employment picture ahead, Pacific Division President C. T. Gray stated, should mean more buying of fresh fruits and vegetables, plus an increase in the number of containers needed to carry them safely to market. Clouding this vista, however, are rising costs.

Such costs—in effect somewhat forced upon boxmakers—are a menace which must be met vigorously and intelligently, warned Gray, who is general manager of the Stockton Box Co., Stockton, Calif. He urged members to seek new procedures of lowering expenses and to pay heed to machinery salesmen and others offering new ideas. Also important, he stressed, was the need to give more attention than ever to close control of manufacturing specifications, thus preventing railway loss claims from being attributed to alleged variations in container part sizes.

File CMB Form B-4 Now!

Another warning, concerning government controls, came from Division Secretary-Manager Jack H. Dobbin of San Francisco. Some Western box factories, he noted, have not yet filed their 1951 fourth quarter CMB Form B-4 with their nearest National Production Authority office. This should be done at once, Dobbin said, since it permits a factory to get a proportion of its advance allotments for the first and second quarters of 1952 now. Failure to file will not jeopardize a factory's fourth quarter allotments for '51, he indicated, but it will prevent getting any advance proportion of its material quotas for next year at this time.

National association activities were reported at the meeting by NWBA President H. H. Pein, Pein Box & Lumber Co., Portland, Ore. Citing the group's advisory work with the NPA and the Office of Price Stabilization, he pointed out that appointment of a Western OPS subcommittee has recognized the basic differences between operations of Western shook producers, who supply mainly fruit and vegetable containers, and the largely industrial output of Eastern boxmakers.

Another featured speaker was Dudley A. Cameron of the California Department of Employment. Notable among the reports comprising the rest of the general session was a recommendation from the Production and Trade Promotion Committee. Headed by Division Vice President G. Cal Setzer of Setzer Forest Products, Sacramento, this group urged that commanding officers and purchasing chiefs of Western military depots and armed service box factories be contacted and informed of the industry's available excess production capacity and its willingness to aid in supplying shook and boxes for military packaging.

Honorary Division membership was conferred by the directors, after the general meeting, upon Swift Berry of Placerville, Calif. Three-time president of the Pacific Division, Berry is now at Washington, D. C., as lumber consultant to the Forest Products Division of the NPA. In other action, the directors set January 16th and 17th as the dates for the annual meeting in San Francisco next year.

Traditional Directors Luncheon at the annual summer meeting of the Pacific Division, National Wooden Box Association. Left to right: Carl J. Unbedacht, Sprute Veneer Package Corp., Puyallup, Wash.; Rudy De Lateur, Grays Harbor Veneer Corp., Hoquiam, Wash.; F. H. Keran, Golden West Box Co., Fresno; Floyd B. Joy, Ace Box Co., Denver; P. V. Burke, Sacramento Box & Lumber Co., Sacramento; National President H. H. Pein, Pein Box & Lumber Co., Portland, Ore.; Jack H. Dobbin, Division secretary-manager; Pacific Division President C. T. Gray, Stockton Box Co., W. S. Kennon, Pickering Lumber Corp., Standard, Calif.; C. A. King, Quincy Lumber Co., Inc., Quincy, Calif.; W. C. Witter, Division treasurer, American Box Corp., San Francisco; Owen Morris, Quincy Lumber Co., Inc.; Division Vice President G. Cal Setzer, Setzer Forest Products Inc., Sacramento; Ward A. Dwight, Jr., Dwight Lumber & Box Co., San Francisco; and L. R. Osburn, American Box Corp., San Francisco. Also present, though not shown above, was S. G. Beach, Beach Box & Lumber Co., Placerville, Calif.

On the new Incline Impact Testing Device just completed at Package Research Laboratory, containers as wide as 76" can be released from as far as 13 feet from the steel and oak bumper.

New One-Man Testing Machine

A new Incline Impact (Conbur) Testing device has just been completed at Package Research Laboratory, Rockaway, New Jersey. This new apparatus replaces one used in testing a great variety of packaged articles for the past 14 years. The original was one of the first ever used.

This new testing device accommodates loads up to 1,000 lbs. and packages 78 inches high or 76 inches wide. The "bumper" is constructed of steel channels, oak boards, and a steel face plate. The dolly, 60 x 72 inches, is faced with maple boards and is mounted on six roller bearing wheels which run on two steel tracks spaced approximately 33 inches apart. Although it is possible to release the dolly from as far as 13 feet from the bumper, a 5th zone shock is obtained from a run of only 28 inches. A 1,000 lb. hoist is located over the dolly to facilitate the handling of heavy loads.

One of the big advantages of this new testing device is that it is now a one-man operation. The dolly is provided with a latch to engage one of the many lugs on a central chain. When not engaged, the latch is held clear of the chain by a spring. The operator starts the chain at the beginning of a test and does not stop it until the test is completed. A release is positioned in the middle of the track to automatically disengage the latch when the dolly has reached a predetermined position.

The Incline Impact Tester is used for the prescribed test of the National Safe Transit Committee and is a standard of the American Society for

(Continued on page 82)

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For Chemical Trade Especially

Shooks - Nested Barrels - Cooperage Stock

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Nail and Bolt Kegs
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How to Insert Barrel Heads

Where Quality is the Guiding Principal, a Certain Amount of Hand Work is Necessary in this Operation

By

Joseph B. Wagner

The insertion of the heads in a wooden tight barrel, which is commonly called "heading-up," is usually accomplished by the use of a machine made expressly for the purpose, of which there are several of different design on the market.

The original machine introduced for this purpose is still used to some extent, and is considered by certain manufacturers as the most satisfactory for this purpose from the standpoint of freedom of action from hindrance of machine parts to the workman when heading up barrels. This machine was the old-time barrel trusser then known as the "Yankee Cooper," with the addition of patented lugs or hand pieces which are attached to the upper end of the arms for pulling down an iron "catch" hoop after the head has been put in place, and later the riveted head hoop.

The chief objection to a machine of this particular design, is the necessity for an under-floor pit in which the base of the machine rests, making it more expensive to install, and particularly so where barrels are manufactured on one of the upper floors of a building. There are several other types of heading-up machines which are used in addition to the one mentioned above, but they do not compare favorably with it as regards to ease of operation.

The usual method employed in heading-up by certain barrel plants is to pass the barrels through one of these machines, in which the heads are quickly inserted and the rivetted head hoop immediately applied and driven down in place, without any regard whatsoever as to whether the barrel being headed-up required "flagging" in the end joints or "quarter" and, in many instances, whether "butt flag" was necessary to remedy such defects as "woodwants" that do appear occasionally in the croze or on the bevel of the head.

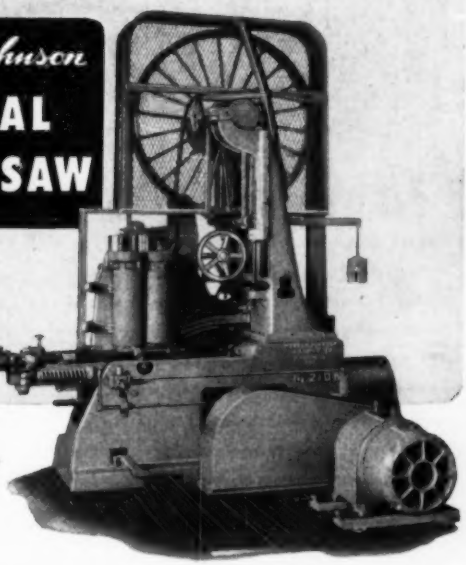
By this method it is the usual practice to attend to these important details *after* the barrel has been fully completed, and often *only* when such defects make their appearance in the testing process. This is slovenly work at its best, for the reason that the barrel is then badly stained on its outer surfaces with the material used in the test coating, which, any one will agree, detracts from its appearance and, in addition is a glaring notification of its inferior quality, as these stains will remain until the barrel is either painted or the stains removed completely with a hand scraper. The latter when done entailing extra labor.

This lack of efficiency in present-day heading-up machines is fully understood by tight barrel manufacturers, for in some barrel factories where careful workmanship and quality product is the guiding principle, the important part of this operation is performed by hand coopers, in that the heads are placed in position: the "quarter" joints "flagged" if required; and "butt flag" carefully in-

(Continued on page 82)

Adjustable to All Conditions . . .

Mereen-Johnson
VERTICAL BAND RESAW



- Individual feed motor drive
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Mereen-Johnson Resaws have special features that make for production economies and low maintenance costs. Eight feed rolls hold the stock rigid and eliminate "stock wobble". Variable feed drive—tilts for bevel siding. V-belt drive, 1200 RPM motor.

For full description and specifications, send for Bulletin No. 2108

Mereen-Johnson MACHINE COMPANY
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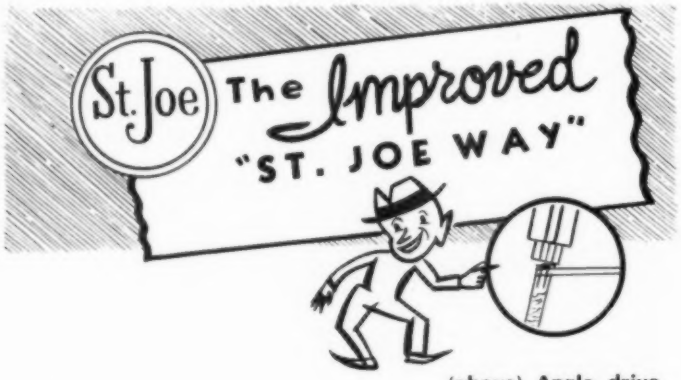
(Continued from page 81)

serted when and where necessary; after which a "catch" hoop made out of heavy gauge hoop steel is driven down by hand to hold the head in place temporarily; the staves are then carefully "boxed in" around the croze, if, and where necessary. The barrel then is passed on to an operator at one of these heading-up machines, where the riveted head hoops are applied and driven down to about one-sixteenth-inch of the stave ends. While this hand method at first glance does appear to be a slow and obsolete one, it has many virtues over the work accomplished by the machine alone, of which may be cited: There will be no disturbance of the "quarter" joints or croze in the completed barrel, which will insure a barrel of better quality, consequently there will be less likelihood of leakage around the croze when the barrel is tested; and the barrel will have a neat, clean appearance, all of which should be taken into consideration where quality is concerned. In addition, this method insures a properly headed-up barrel, one that will require no extra labor after it has been fully completed, which in the final analysis will be found to be more economical and satisfactory.

When, Where, and How Much "Flagging"?

This matter of *when*, *where*, and *how much* "flagging" should be used is worthy of more consideration than the average workman usually places upon it. Furthermore, it is clearly evident that, *if* the head inserted in a barrel has no defects around its bevelled edge or "bead", and is an exact fit, such a barrel would be superior in quality in every way to one that carries "flagging" in some place or other, for the reason that "flag" when used is only a makeshift, to take the place of a lack of sound wood. Therefore, when necessity demands its use, it should not be used indiscriminately, but put in place with proper thought and care, as *too much* "flag" is equally as faulty as *not enough*.

Now then, in view of the above indisputable facts, it is apparent that a barrel head with a considerable amount of "woodwant" any where on its "head" is a "cull" head and should not be used in a "tight" barrel, and only *enough* "butt flag" used in the small "woodwants" to properly fill in the open space and *no more*. When open joints between the staves appear around the barrel end, a good quality of *stripped* "flagging" should be used. By "stripped flagging" we mean the long top leaves, which should be cut *in half lengthwise* in such a manner that the leaf is its full width, but only one-half as thick. These when used should be pulled well down into the "*quarter*", so that this portion of the stave joint is properly filled, as leakage may result if this is not done correctly.



74 YEARS of designing the finest stapling machinery of its type has given St. Joe Machines a thorough understanding of the numerous problems confronting the basket and hamper manufacturer. Over the period of years many new improvements as well as new staplers have been developed by St. Joe Machines to meet the demand for faster and more economical equipment—and today! as yesterday, St. Joe Machines is still the leader in this specialized stapling machinery manufacturing.

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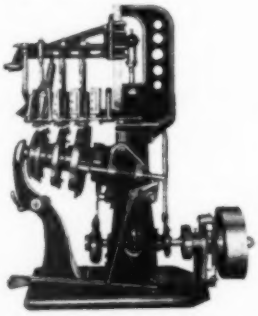
(above) Angle drive permits the use of thinner bottoms, allowing the staples to be driven parallel with the wood bottom—saving material and providing your customers with quality containers.



(above) Model No. 234 Tub Basket Stapler, arranged with form for making Tub Baskets, for full details write for bulletin 5G-2.

1877 **St. Joe Machines, Inc.** 1931

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ST. JOSEPH MICHIGAN

RESEARCH LAB

(Continued from page 80)

Testing Materials and the Technical Association of the Pulp and Paper Industry.

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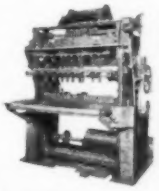
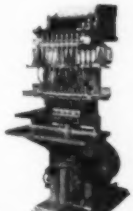
WILL PICK *and drive* THE NAILS...!



fmc EDGE NAILER—Embodies most features of standard industrial center-line nailer but special chuck arrangement permits work to pass in front of machine for edge nailing, crate and edge box framing, cleating.

fmc SCREW DRIVING MACHINE—drives up to four screws simultaneously into wooden boxes and other assemblies. Ideal for screwing hinges, swivels and hasps on small ammunition or similar type boxes.



fmc CLOSED BACK FC NAILER—accommodates work from 1" to 18" deep; 8 or 12 run nail feed; 8 nail drive; 4d, 5d and 6d nails. Ideal for flat nailing, box making, cleating and lidding. Ammunition box end making.

fmc AMMUNITION BOX MAKER (AC-5A)—adjustable, heavy duty for nailing sides and bottoms to ends of various types of ammunition and industrial boxes no larger than 16" high, 16" wide, and 26" long.

This open-back nailing machine is especially designed to provide the utmost versatility both in size and nailing patterns. Three standard models accommodate nailing patterns up to 42"x24", 60"x24" and 74"x24". Special custom adaptations are available on order. Standard machine selects and drives up to 24 nails per stroke; 87 strokes per minute; drives all types of nails from 3d to 10d — common, smooth box, cement-coated box, copper, aluminum, drive screw ring shank. Design of jigs and nailing tables are custom-engineered to specific requirements of jobs to be done.

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- ☐ Edge Nailer
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Jointer Jottings

THE HAND-FEED JOINTER, OR BUZZ PLANER, IS STILL USED EXTENSIVELY for edge-dressing, edge-moulding, stock-facing and various other operations. The modern jointers are ball-bearing machines equipped with safety-type round cylinders carrying thin high speed steel knives and are usually equipped with efficient rabbeting attachments. Their fences can be set perfectly square with the bed and at any angling point between that and 45-degrees with the bed.

* * *

HANDY ADJUNCTS FOR EFFICIENT JOINTER OPERATION ARE: an auxiliary fence, about 9 or 19 inches high, which can be firmly attached to the regular fence to assist in supporting long and heavy material, a heavy hardwood spring which can be clamped to the jointer bed for holding heavy stock against the fence, and an adjustable offbearing table for supporting lengthy material while being jointed.

* * *

DEPTH OF CUT IS AN IMPORTANT CONSIDERATION AT THE JOINTER when using power-feed facing attachments. Common practice is to set the cutters to take a cut that will clean up a reasonable portion of the stock in a single pass through the machine. This cut should never be heavy enough to cut or clean up the worst of the stock at the first pass. Where a piece fails to clean up, the offbearer only has to lay it back on the top strand of the feeding conveyor which carries it back to the infeed end for another pass.

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Single Ply Rotary Cut Veneer
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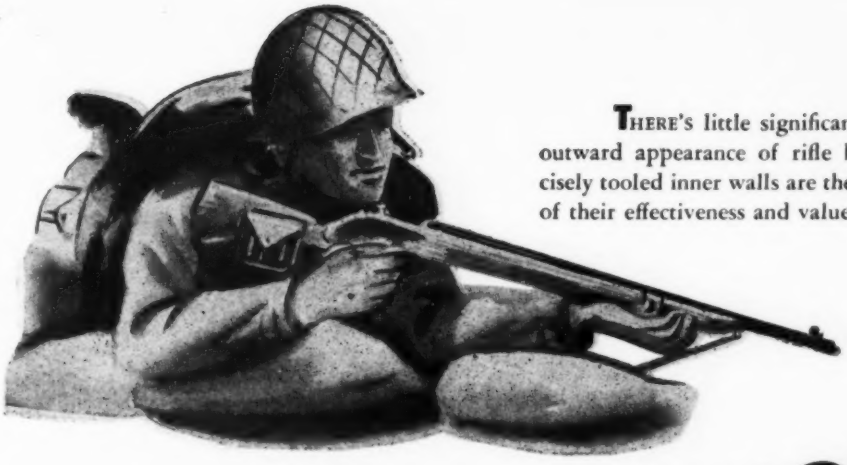

THERE'S little significant difference in the outward appearance of rifle barrels. Their precisely tooled inner walls are the principal measure of their effectiveness and value.

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SO, TOO, with whisky barrels. They all look black through the bunghole. But hidden in that darkness is the all-important inner wall which does much to determine the ultimate quality, flavor, and color of your fine whisky.

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Precision-built of prime white oak, Blue Grass barrels are uniformly charred to your specifications. In addition, for the asking, you may have the Blue Grass Patented Efficiency Head which checks costly outage at the most crucial point in the barrel . . . the head joint. Write for details or plan now to order Blue Grass cooperage.

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Thoroughly air-dried
Precision firing
Uniform charring to specifications
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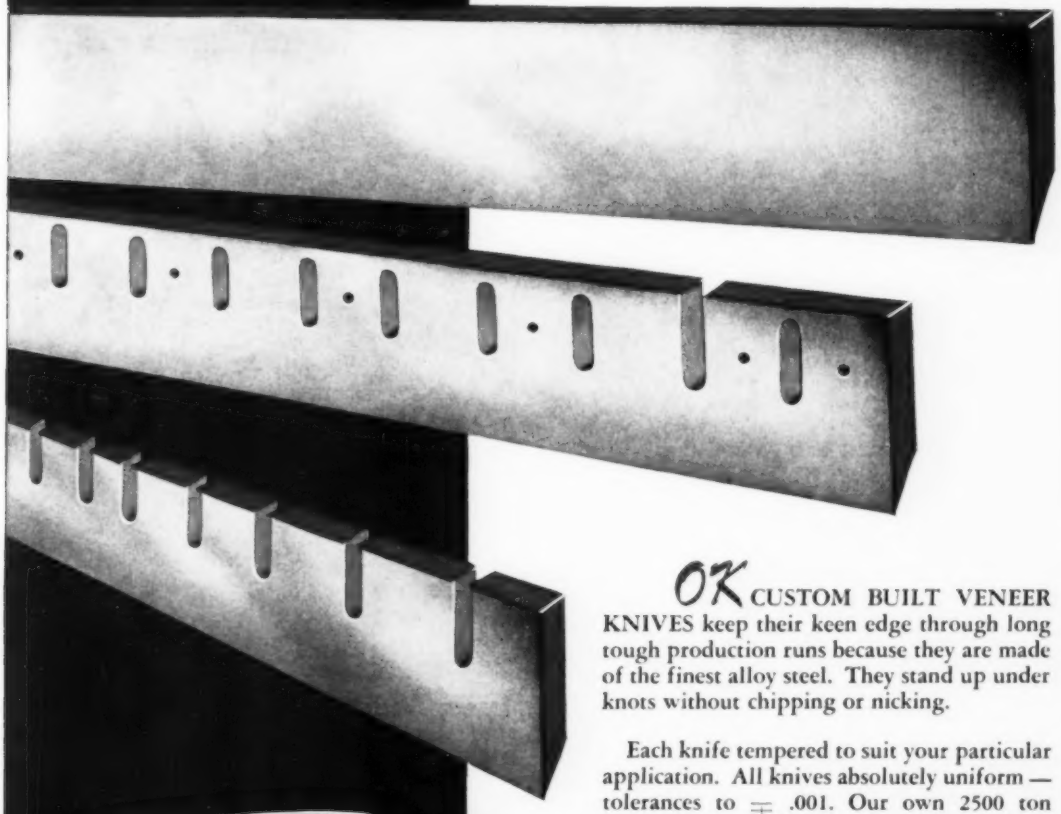

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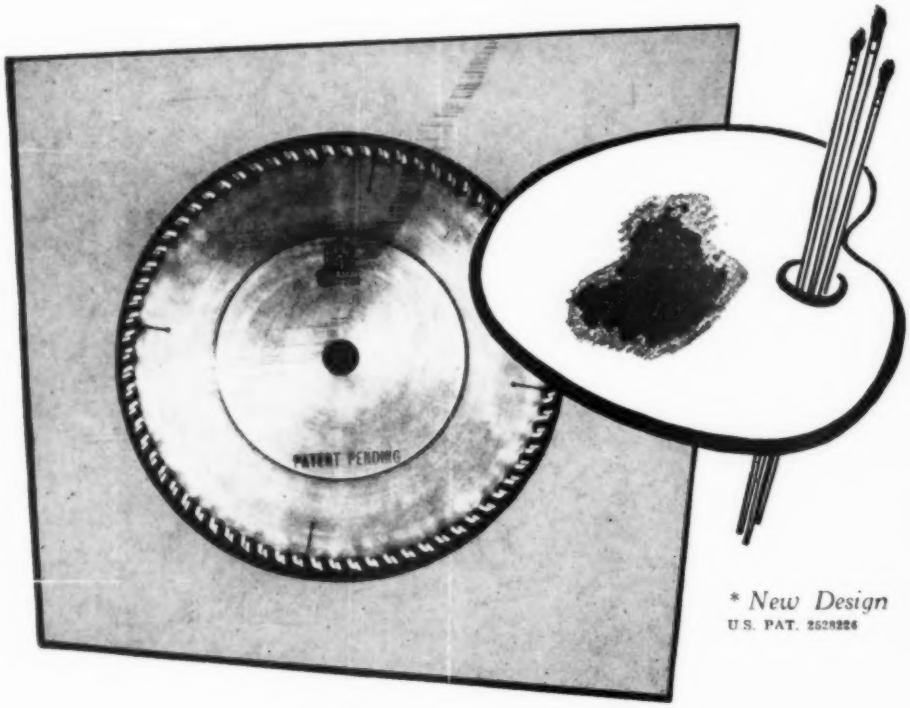

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